MULTI-MEDIA COMPLIANCE EVALUATION INSPECTION
U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION III
OFFICE OF ENFORCEMENT, COMPLIANCE, & ENVIRONMENTAL JUSTICE

American Zinc Recycling Corporation
(formerly Horsehead Corporation)
900 Delaware Ave
Palmerton, Pennsylvania 18071

Inspection Dates: 14-18 May 2018

Facility Representatives	**U.S. EPA Inspectors**	**PADEP Representatives**
Joe Falko Environmental Manager AZR Palmerton	Michael P. Eller Physical Scientist U.S. EPA - Philadelphia	Scott Confer Water Quality Specialist PADEP - Bethlehem District Office
Michael Foster Plant Manager AZR Palmerton	Jim Kline Physical Scientist U.S. EPA - Wheeling	Sandra Insalaco Water Quality Specialist Supervisor PADEP -NE Regional Office
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EPA Lead Inspector Michael P. Eller 06AUG2018

Signature/Date **Michael P. Eller** **Date**

Director, OECEJ Samantha Phillips Beers 8/6/18

Signature/Date **Samantha Phillips Beers** **Date**

Introduction

On 14 -18 May, 2018, the U.S. Environmental Protection Agency, Region III ("EPA"), conducted an unannounced multi-media compliance evaluation inspection ("Inspection" or "the Inspection") of American Zinc Recycling Corporation located at 900 Delaware Ave, Palmerton, Pennsylvania ("Facility" or "AZR"). In preparation for the Inspection, EPA notified the Pennsylvania Department of Environmental Protection (PADEP) of the Inspection via e-mail on 16 April, 2018. On 18 April, 2018, EPA sent AZR an Information Request Letter under Section 308 of the Clean Water Act (CWA), Section 1445 of the Safe Drinking Water Act (SDWA), Section 3007(a) of the Resource Conservation & Recovery Act (RCRA), and Section 114 of the Clean Air Act (CAA). On 25 April, 2018, EPA also conducted a review of the Facility's CWA National Pollutant Discharge Elimination System (NPDES) permit file, at PADEP's Northeast Regional office.

At 10:32 on 14 May, 2018, the EPA Inspection team arrived at the front gate to the Facility. EPA inspectors Michael Eller, Margaret Hernandez-Vega, José Jimenez, Lisa Trakis, and Jim Kline presented their credentials to the gate guard, asked to be admitted to conduct the Inspection, and signed into the Facility. PADEP representatives Scott Confer, Sandra Insalaco, Dan Akers, Amy Bellanca, Philip Amico, and Robert Mullin accompanied the EPA Inspection team. Beginning at approximately 10:47, the EPA inspectors held an opening conference with Facility representatives Joe Falko (Environmental Manager), Michael Foster (Plant Manager), Tim Basilone (Vice President for Environmental Affairs, on the phone from AZR's Pittsburgh offices) and Bruce Morgan (Vice President for EHS and HR, on the phone from AZR's Pittsburgh offices). All EPA inspectors presented their credentials to Mr. Falko and Mr. Foster at the beginning of the opening conference. EPA inspector Eller explained the purpose of the Inspection, and informed the Facility representatives that the scope of the Inspection would focus on the Facility's CWA-NPDES compliance, Emergency Planning and Community Right-to-Know Act (EPCRA) Section 313 compliance, and Spill Prevention, Control, and Countermeasure (SPCC) plan. EPA Inspector Eller informed the AZR representatives that the Inspection would be process-based, which would necessitate that EPA inspectors be allowed full access to the Facility's industrial process areas. Mr. Falko informed the EPA inspectors of respiratory protection requirements to enter certain buildings at the Facility. Eller stated that EPA inspectors would take photographs during the Inspection. Eller and Mr. Basilone verbally agreed that AZR would receive a copy of all photographs in order to screen them for Confidential Business Information. Mr. Foster then gave the EPA inspectors a brief description of the Facility's operations and production. After the opening conference concluded, the EPA inspectors divided into two media-specific teams. EPA inspectors Trakis, Kline, and Eller began the CWA-NPDES portion of the Inspection by examination of the Facility's storm water and industrial waste water systems. EPA inspectors Jiménez and Hernández-Vega began the EPCRA 313 and CWA-SPCC portions of the Inspection.

Weather Conditions

Weather conditions observed during the Inspection, and reported by the National Weather Service for Palmerton, Pennsylvania, were as follows:

Monday, 14 May, 2018

At 09:40: Overcast, becoming partly sunny by mid-morning, 56° F (forecast high temperature 76°F), calm to SW wind 5-7 mph.

Tuesday, 15 May, 2018

At 08:45: Sunny, 68° F, SW winds 5-14 mph

15:53: Overcast, gusty N-NW winds, thunderstorm approaching

16:05: Thunderstorm, heavy rain

16:55: Thunderstorm ceased

EPA inspectors Eller and Kline, and Facility Environmental Manager Mr. Joe Falko, observed a strong thunderstorm pass over the Facility on 15 May, 2018. At approximately 15:53, strong, gusty northwesterly winds began to blow over the Facility. EPA inspectors Eller and Kline observed visible clouds of brown dust were mobilized from paved areas of the Facility by the winds of the approaching storm (see Photo 1 [Video]). The airborne dust began to obscure visibility. Eller, Kline, and Mr. Falko sought shelter inside Mr. Falko's vehicle. As they moved eastward on foot underneath the kilns, towards Mr. Falko's vehicle, Eller observed westerly wind gusts stirring up black Iron Rich Material (IRM) and other particulate material, causing it to swirl around or eddy close to the ground. By approximately 16:05, heavy rainfall started, accompanied by thunder.

The thunderstorm had ceased when EPA inspector Eller next directly observed weather conditions during a visual examination of effluent at the outfall 004 weir at approximately 16:55.

The EPA inspectors note that light rain continued to fall intermittently throughout the night of 15-16 May, 2018 and continued steadily throughout the next day (16 May, 2018).

Wednesday, 16 May, 2018

At 10:30: Overcast, rain, forecast high temperature 74° F, calm to E wind 7 mph

Thursday, 17 May, 2018

At 07:51: Overcast, light rain, 61° F (forecast high temperature 74° F), winds calm

The 24-hour precipitation totals at three National Oceanic and Atmospheric Administration (NOAA) rain gauges near the Facility are shown for each day of the Inspection in Table 1. Note, these numbers are the total precipitation recorded during the 24 hours prior to the date of the measurement.

Facility Regulatory Status

At the time of the Inspection, the Facility's environmental regulatory status was as follows:

Clean Air Act – Title V: The Facility holds a Title V permit for its emissions to air, permit number 13-00001, issued by PADEP on 24 March, 2014. This permit includes numeric limits on lead (Pb) emitted from Kiln 1. A state air monitor in Palmerton has recorded lead in exceedance of the National Ambient Air Quality Standard for Pb of $0.15 \mu g/m^3$.

Clean Water Act – NPDES discharges: PADEP issued a NPDES permit, number PA0064378, to "Horsehead Corporation – Palmerton Facility", the corporate entity that owned and operated the Facility prior to AZR. The permit became effective 1 July, 2011 and authorizes the combined discharge of non-contact cooling water and storm water through outfall 004, and the discharge of storm water and boiler blowdown through outfall 005, to the Aquashicola Creek.

Horsehead Corporation applied for a renewal of the Facility's NPDES permit on 29 December, 2015. The permit expired on 30 June, 2016 and has been administratively extended. The Horsehead Corporation was subsequently renamed the American Zinc Recycling (AZR) Corporation. AZR applied for the Facility's NPDES permit to be transferred to AZR on 30 May, 2017.

Clean Water Act - SPCC: At the time of the Inspection, the Facility had above-ground oil storage containers in excess of 660 gallons, and an aggregate above-ground storage capacity of approximately 61,000 gallons. The Facility has an SPCC plan, which is part of the Facility's Integrated Contingency Plan, dated November, 2017.

Resource Conservation Recovery Act - Hazardous Waste: The Facility is a Large Quantity Generator of hazardous wastes, EPA ID number PAD002395887. Mr. Falko explained that major hazardous waste streams generated by the Facility include contaminated personal protective equipment (e.g. gloves), contaminated conveyor belts, and kiln refractory brick, which when damaged or broken is termed "kiln rubble." Kiln brick waste is generated during a kiln maintenance shutdown. Kiln brick is managed as a hazardous waste due to its content of lead (D008) and cadmium (D006) accumulated during waelzing or calcining operations. The Facility also holds a RCRA permit (under the same EPA ID number) for the storage of electric arc furnace dust (waste code K061) up to one (1) year inside building 608. The permit was issued by PADEP on 10 October, 2006, and expired 10 October, 2016. The Facility has submitted a Part B renewal application to PADEP.

Emergency Planning & Community Right to Know (EPCRA): Based of the number of full-time employees, the Facility's NAICS and SIC codes, and the materials processed by the Facility, EPA inspectors Hernandez-Vega and Jimenez determined that the Facility meets the criteria in 40 C.F.R. Part 372 for EPCRA Section 313 reporting. According to Facility representatives, the Facility exceed the reporting threshold for the following EPCRA 313 chemicals: vanadium(V) compounds, nickel (Ni) compounds, lead (Pb) compounds, manganese (Mn) compounds, zinc (Zn) compounds, mercury (Hg) compounds and cadmium (Cd) compounds for 2014, 2015 and 2016.

CZO Release 1 May, 2018

On 1 May, 2018, the Facility reported to EPA's National Response Center (NRC) a release of three (3) tons of crude zinc oxide (CZO). PADEP personnel responded to the reported release the same day. On 3 May, 2018, EPA subsequently received an anonymous citizen complaint via its web-based Report a Violation system of dust related to the CZO release blowing around residential areas in Palmerton. The Facility later rescinded its report to the National Response Center. Mr. Falko stated that the CZO release was reported to the NRC because it was initially thought to contain more than 10 pounds of lead, the reportable quantity under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Mr. Falko stated that, after further review, the actual amount of lead released was 5.07 pounds. Mr. Robert Mullin, PADEP Air quality specialist, was conducting a follow-up visit to the Facility regarding the 1 May, 2018 CZO release when he accompanied the EPA Inspection team.

Facility & Process Description

The following descriptions of the Facility and its process are based on: Mr. Foster's description during the opening conference, information provided by Facility employees during the process-based Inspection, publicly-available government data and reports, publicly-available published sources of information on secondary zinc recovery, and the history of the Facility's corporate ownership, such as newspaper articles, and the direct observations of the EPA inspectors.

The Facility is a secondary zinc recovery operation (NAICS code: 331492 Secondary smelting, nonferrous metal; SIC code: 3341). The Facility is situated in the Borough of Palmerton, Carbon County, Pennsylvania, a town with an estimated 5,306 residents (U.S. Census Bureau estimate for 2017). Physically, the Facility sits partially on, and adjacent to, the southern flood plain of the Aquashicola Creek, encompassing the area between the channel and the northern flank of Blue Mountain (See Aerial Photograph in Figure 1a). The Aquashicola Creek is a second order perennial stream that is the main drainage channel for Palmerton and surrounding areas (See Photos 124 and 125). The drainage basin area at Palmerton is approximately 76.7 square miles. The Aquashicola Creek flows westward to the Lehigh River, a part of the Delaware River watershed. The segment of the Aquashicola Creek to which the Facility discharges is impaired for metals and was listed on the CWA 303d list of impaired waters in 2004. The Commonwealth of Pennsylvania has designated the Aquashicola as a warm water fishery. The Facility covers approximately 114 acres on the south side of the Aquashicola Creek, approximately 85% of which is impervious surface (Horsehead Corporation, NPDES application, Dec. 2015). Topography at the Facility generally consists of a slight slope northward towards the Aquashicola Creek, with a total relief between the southernmost boundary of the Facility and the creek of approximately 16 feet (slope = 0.01). Geologically, the Facility is situated atop poorly sorted Pleistocene glacial outwash deposits and is bordered to the north by the Quaternary alluvium of Aquashicola Creek (Epstein and Sevon, 1974). The Borough of Palmerton has three (3) Public Water Supply wells situated close to the Facility's western boundary, which tap a deep bedrock aquifer. The Facility's main northern entrance is approximately 1.5 linear miles northeast of the confluence of the Aquashicola Creek with the Lehigh River.

The Facility is situated on the site of a former primary zinc smelter of the New Jersey Zinc Company, known as the "East plant," which originally began primary production from zinc ores and ore concentrates in 1911 (USGS, 2010). In 1981, the New Jersey Zinc Company was reorganized under a private holding company known as Horsehead Industries, and processing of primary zinc ore at the East plant ceased. Production shifted to the recovery of zinc from secondary sources, including kiln operations to recover zinc from hazardous wastes. From 1981 to 1987, the Facility was operated by New Jersey Zinc Company as a subsidiary of Horsehead Industries. From 1987 to 2003, the Facility was operated by Zinc Corporation of America, a subsidiary of Horsehead Industries, and by Horsehead Resource Development Corporation, an affiliate corporation of Horsehead Industries (International Directory of Company Histories, 2003). From 2003 to 2017, the Facility was operated by Horsehead Corporation. In May 2017, the Horsehead Corporation, was renamed American Zinc Recycling Corporation.

As of the date of the Inspection, the Facility engages primarily in the recovery of zinc from steel mill electric arc furnace (EAF) dust, a listed hazardous waste (EPA Waste code K061). Its two main processes are pyrometallurgical processes known as waelzing and calcining. The primary material that is made during the waelzing process is a zinc oxide intermediate called “crude zinc oxide (CZO)”, also sometimes called “waelz oxide (WOX).” CZO is the feedstock for the calcining process. Waelzing also produces a slag material called “Iron Rich Material” (IRM). The primary material to come out of the calcining process is called “calcine,” a zinc oxide with an enriched zinc content of approximately 70%. The calcining process also generates lead chloride ($PbCl_2$). A general process flow diagram for both the waelzing and calcining processes is shown in Figure 2.

At the time of the Inspection, the Facility had four (4) natural gas-fired rotary kilns, three of which were in operation. The kilns are designated with numbers 1, 2, 5, and 6. Kilns 2 and 5 were engaged in the waelzing process, while Kiln 1 was performing the calcining process. Kiln 6, which is normally a calcining kiln, was down for maintenance. Kiln 3 was no longer present. Mr. Foster stated the Facility had, at the time of the Inspection, approximately 120 full time employees. The Facility operates three shifts, twenty-four hours per day, seven days per week, 365 days per year.

EAF Dust Unloading

The raw material utilized by the Facility for the waelzing process is electric arc furnace (EAF) dust generated by carbon steel making. EAF dust is a listed hazardous waste (EPA Waste code K061) and contains a variety of metals such as zinc, lead, cadmium, chromium, copper, manganese, nickel, and vanadium in varying concentrations. EAF dust arrives at the Facility by truck and by railcar. Facility employees collect a sample of each incoming load at building 601 and screen the sample for radiation and zinc content. EAF dust typically contains approximately 18-20% zinc, on average, according to Mr. Foster’s verbal estimate. The Facility keeps records of the chemical profiles of EAF dust from each supplier, and also collects a monthly composite sample of EAF dust to generate an average chemical profile of its EAF dust from all suppliers. The Facility’s largest EAF dust supplier, supplying an estimated 50-70% of the Facility’s EAF dust, is the Nucor Corporation. Mr. Foster verbally stated an estimate of 12,000 to 15,000 tons of EAF dust are accepted by the Facility on a monthly basis.

When unloading, tractor trailer trucks carrying EAF dust first pull up to a roll-door on the south side of building 608, and then back into the building (see Figure 1b). Building 608 is a RCRA-permitted hazardous waste storage building for the storage of K061 waste.

When the roll-up door has been closed, the truck then dumps its load of EAF dust (and the trailer's plastic liner) on the floor. A remotely-controlled water cannon sprays the dumped load of EAF dust with "industrial" water and/or wastewater recycled from the truck wash bays, in order to wet down the dust. A payloader then moves the EAF dust load onto the main EAF dust storage pile. The plastic liner is fed into a shredder and discarded as hazardous waste.

Pressure differential trucks and pressure differential rail cars unload at Building 6632 or 630, respectively, and the EAF dust from these vehicles is conveyed pneumatically directly to Building 608.

Immediately upon exiting building 608, tractor trailer trucks drive through an interior door into adjoining building 624 and go through one of three wash bays. Facility employees utilize pressure washers to spray the rear tires of the trucks with potable water provided by Palmerton Borough. Contaminated wash water drains through strip drains in the wash bay floor to a circular open-top holding tank that is situated within an approximately 8 ft. by 8 ft. concrete sump. According to Facility employee Mr. David Kunkle, pumps then transfer this wastewater from the holding tank to the water cannon in building 608 to help wet down the EAF dust pile. The trucks then exit the wash bay doors on the east side of building 624.

Pelletizing

EAF dust is combined with a carbon source. The carbon source may be coal, anthracite coke, petroleum coke, or metallurgical coke. Mr. David Kunkle described the pelletizing process for EAF dust and coke. According to Mr. Kunkle, inside building 608, payloaders load EAF dust and coke fines onto two separate pans. The pans rotate and transfer the materials onto a series of conveyor belts where the EAF dust and coke fines mix. The conveyor belts, in turn, then feed the mixed materials into a bucket elevator which raise up the materials to an elevated conveyor belt. This elevated conveyor belt feeds the EAF dust/coke mix into 100-ton bins. From the 100-ton bins, material drops onto a rotating series of 3-inch x 12-inch metal pans. As each pan rotates downward, it dispenses its material on the pelletizer. The pelletizer is a rotating 18-foot diameter disk, which Mr. Kunkle described as “like a Ferris wheel” tilted at a 60° angle. As the pelletizer rotates, the mixture of EAF dust and coke fines clumps and coalesces into sub-rounded to spherical pea-sized pellets (see Photo 43). The pelletized EAF dust and coke then drops off the pelletizer onto elevated conveyor belts, termed the “gallery belt” and “blender bypass” by the Facility, which move the material up to the top of the kilns (see Photos 115 and 116).

Waelzing

Waelzing is a pyrometallurgical process in which a metal-rich feedstock is reduced in the presence of carbon inside a rotating kiln at very high temperatures. The Facility combines EAF dust, its primary feedstock, with coke fines that act as both a fuel and a reducing agent. EAF dust and coke fines are pelletized, then fed into the top of the waelzing kilns. The kiln itself is a large cylindrical object, approximately 180 feet long and 12 feet in diameter, with its long axis slanted downwards at a slight angle (see Photo 44). The cylindrical kiln constantly rotates which causes the material fed into the top of the kiln to trundle down the long axis of the kiln. Within the first 60 feet or so, the feedstock has been heated to operating temperature and moisture volatilized (Unger et al, n.d.). As the material continues to roll through the kiln, “light” (lower boiling point) metals such as zinc are reduced by the carbon and vaporized. The vaporized metals are swept from the top of the kiln into a “dust catcher” unit where the air stream, typically discharging from the kiln at temperatures up to 1,350° C (Unger et al., n.d.), can be cooled. At the lower temperatures inside the dust catcher and associated ductwork, the vaporized metals, now oxidized, change phase back to solids. The “light” materials in waelzing form crude zinc oxide (CZO) which, according to Mr. Foster’s verbal estimate, is up to approximately 59% zinc. CZO also contains significant quantities of oxides and halides of lead and cadmium. The air stream with CZO material is then drawn through a pipeline by an induction fan (termed the “hot fan”) through a baghouse (which the Facility terms a “product collector”). Mr. Falko stated that polypropylene bags capture the CZO material and a pulse-jet system (compressed air) blows CZO off the exterior of the bags when the pressure differential between the clean and “dirty” sides of the bags is high enough. CZO then exits the baghouse into a hopper, and is then moved by a screw conveyor into a silo. A pin-mixer then mixes and sprays water to wet the CZO and agglomerate it. According to Mr. Falko, the CZO is then stored in piles inside the Facility’s “G&H” building (building 644). The “heavy” (i.e., higher boiling point) materials that do not volatilize during the waelzing process continue to trundle down to the bottom of the kiln where they drop out. This material is termed "Iron Rich Material" (IRM). Hot, partially molten IRM drops from the bottom of the kiln into a water bath inside an open tank to be quenched. A conveyor belt transfers the quenched IRM out of the tank and drops the material into a pile inside a concrete bunker. Facility workers transfer IRM from bunkers with a payloader to the IRM dome, (building 6603) where it is stored temporarily. Mr. Basilone explained that the Facility performs the Toxicity Characteristic Leaching Procedure (TCLP) on IRM stored in the dome weekly. The TCLP for 8 RCRA metals and zinc is required for the Facility to demonstrate their kilns are operating in a manner that meet the requirements for High Temperature Metal Recovery at 40 CFR Part 266 Subpart H. Mr. Foster and Mr. Basilone stated that IRM can be sold for use as aggregate and has also been land applied in "IRM cells" to treat contaminated surface runoff and groundwater from the Palmerton Zinc Pile Superfund site.

Calcining

Calcining is the next processing step to enhance zinc recovery. Calcining is very similar to the waelzing process. The raw feedstock for calcining is CZO. The Facility uses CZO made by its own waelzing kilns, and also receives rail shipments of CZO from other AZR waelzing operations, such as AZR's Chicago and Tennessee plants. Mr. Foster verbally estimated that between 11,000 and 15,000 tons per month of CZO are put through the calcining process. A calcining kiln is a rotary kiln fired by natural gas with essentially the same size and dimensions as a waelzing kiln, but the feedstock includes no coke or fluxes. When the temperature reaches approximately 1,250°C, low boiling point metals, including lead, vaporize and are swept out of the air stream at the top of the kiln. These materials, which include lead chloride ($PbCl_2$), cool and solidify in dust catcher units. $PbCl_2$ is then captured by shaker baghouses (see Photos 113 and 114). The $PbCl_2$ captured by the baghouses ("product collectors") drops into a hopper. The $PbCl_2$ is then moved by a screw conveyor into a 90-ton storage silo, and from there, travels by a chute into the $PbCl_2$ packing building (building 616). Facility employees pack $PbCl_2$ into supersacks. At the time of the Inspection, supersacks of $PbCl_2$ were stored both indoors and outdoors. Mr. Foster and Mr. Basilone stated that, at the time of the Inspection, the Facility has contracts with three foreign recyclers in Belgium to sell the lead chloride for further recovery of lead, silver, and zinc. Mr. Falko stated that $PbCl_2$ material is shipped out under a bill of lading as a product.

The "heavy" material which drops out of the bottom of a calcining kiln is known as "calcined zinc oxide," "zinc calcine," or simply "calcine." Calcine, which is approximately 60% to 70% zinc, is sold as a raw material to zinc smelters. Similar to IRM, when calcine drops out of the bottom of a kiln it is hot and may still be partially molten. It drops into a water bath inside a metal tank to be quenched by direct contact with the water, and is then conveyed out of the quench tank via a conveyor belt system and dropped into a pile inside a concrete bunker. Mr. Foster stated that, of the total tonnage of CZO that goes into the calcining process, approximately 85% is converted to calcine, while the remaining 15% is captured as lead chloride in the baghouses.

Palmerton Zinc Pile Superfund Site

The Facility is co-located with the Palmerton Zinc Pile Superfund site. The Superfund site includes a large ridge of slag material from decades of primary zinc smelting by the New Jersey Zinc Company, known as the "Cinder bank." The Cinder bank is located immediately to the south of the Facility's current property boundary on the northern flank of Blue Mountain. Operable units of the Superfund site also include the soil on the flank of Blue Mountain and much of the Aquashicola valley, and the shallow aquifer. The Palmerton Zinc Pile was added to EPA's National Priority List in 1983, to address the Cinder bank and heavy metals, including zinc, lead, cadmium, and arsenic, emitted by primary smelting operations. The potentially responsible party for the remedial action at the Palmerton Zinc Pile Superfund site is the CBS Corporation, overseen by EPA. Drainage from the Cinder Bank on the flank of Blue Mountain is managed by a large east-west trending drainage trench. The trench conveys most runoff westward to a point on the southern boundary of the Facility where it spills through a weir, then joins the Facility's underground storm sewer system, and discharges to Aquashicola Creek from NPDES permitted outfall 005. During the Inspection, Mr. Falko referred to the trench's connection to the Facility's storm sewer system as "Trench East."

As part of the remedial action at the Palmerton Zinc Pile Superfund Site, IRM produced by the Facility's waelzing kilns was utilized by land application into IRM "cells," large excavated areas filled with IRM that act as filters for shallow ground water, and Metal Reduction Zones (MRZs), surface cells of IRM that filter surface seepage from the Cinder Bank. These ground waters and surface waters have high concentrations of zinc and other heavy metals. According to Mr. Basilone, the IRM has the ability to adsorb heavy metals, thus acting as a kind of filter material. Two MRZs are located near the eastern edge of the Cinder bank, and one MRZ is located near the western edge.

Water supplies (Potable & Industrial)

Water service to the Facility is provided by the Palmerton Municipal Authority and consists of both a potable water supply from Palmerton's Public Water System (PWS ID number PA3130012), and a supply of non-potable "industrial" water. Industrial water is utilized by the Facility for quenching of intermediate and final materials from the waelzing and calcining kilns, and for non-contact cooling of kiln bearings and pyrometers. According to Facility engineer Mr. Aaron Perkins, the source of "industrial" water is the Parrysville Dam, located on Pohopoco Creek, a few miles northwest of the Facility. The "industrial" water is piped through Bowmanstown to the site of the former New Jersey Zinc Company's "West plant" where it is stored in 2-million gallon storage tanks on a hillside. From these tanks, the "industrial" water is fed by gravity to the Facility. Mr. Perkins stated that the "industrial" water is used by both the Facility and by its tenant, Airgas, and there are also eight (8) industrial water hydrants around the Facility. According to a verbal statement by Mr. Chris Logelin, Manager for Environmental Affairs from AZR's Pittsburgh office, the Facility's water usage for April, 2018 was the following:

"Industrial" water: 489,190 gallons

Potable water: 88,519 gallons

Sanitary Sewer discharges

Potable water that is utilized for sanitary purposes (bathroom sinks, showers, and toilets) is discharged to Palmerton's Publicly Owned Treatment Works (POTW) via connection to the municipal sanitary sewer system. Mr. Logelin verbally stated that the Facility does not have an industrial discharge to the POTW, and does not, therefore, hold an Industrial User Pretreatment permit.

Mr. Falko stated that the Facility has a policy that employees should shower before leaving the Facility.

Truck wash water

Some potable water (approximately 5-10 gallons per wash) is utilized for washing the tires of tractor trailer trucks in the truck wash bays (building 624) adjoining the EAF dust unloading and storage building (building 608). Potable water enters a room adjacent the wash bays via an approximately 2-inch diameter copper service line. The water may be heated by a boiler or hot water heater, and then resides in a cylindrical tank metal tank, with a capacity of approximately 30 gallons. Four (4) centripetal pumps move the water to feed pressure washers in the truck wash bays. The dirty wash water drains into T-shaped floor drains in wash bays, then by gravity back to a circular, open-top metal holding tank located in the room immediately adjacent to the southern-most wash bay. The holding tank is situated below floor level inside a concrete sump, approximately 8 feet by 8 feet square, and covered by a metal grate. According to verbal statements by Facility employee Mr. David Kunkle, dirty wash water is recycled by pumping it out of the holding tank to the water cannon utilized for dust suppression inside building 608.

Quench water

Industrial water that is utilized for quenching enters the "kiln floor," located inside the building at the south end of the rotary kilns, via an approximately 3-inch diameter pipe, passes through a solenoid valve that can be opened/closed by a "bubbler" level gauge in the quench tanks, then passes into an approximately 1-inch diameter pipe to be fed downward into the quench tanks. The quench tanks are large rectangular concrete and metal box-shaped tanks, open on both short ends, that are partially filled with a bath of "industrial" water. Hot intermediate and final materials (IRM from the waelzing kilns and calcine from the calcining kilns), continuously drop out of the bottom of the rotary kilns, and fall into the quench water baths where the materials are cooled by direct contact with the industrial water. Quench water that leaves the quench tanks adhered to solid material, or changed to steam, is replenished by the industrial water supply when the solenoid valve is tripped open by the "bubbler" level gauge. A system of pans on a conveyor belt, resembling a ski lift system, rotates through the quench tanks, scoops up quenched IRM or calcine material, moves it up and out of quench tanks, and then deposits it into piles inside open concrete bunkers. Some quench water may re-condense and fall onto the ground as the conveyor belt moves material out of the quench tanks, or seeps from the piles of material in the bunkers. This quench water accumulates in puddles and very shallow swales on the ground. IRM quench water from Kiln 2 pools and drains through a shallow earthen swale to an earthen sump just outside the quench tank. Mr. Falko stated that a submersible pump inside the sump recycles this quench water back into the quench tank.

Non-contact cooling water

Industrial water that is utilized for non-contact cooling of kiln systems is piped up to water jackets on the pyrometers, and manifolds on the rotary kiln bearings. Non-contact cooling water then drains by gravity through vertical pipes that go underground and convey water to the "Pump pit" located immediately west of Kiln 2 (see Photo 44).

Wastewater treatment system

According to the Facility's 2015 NPDES permit application, non-contact cooling water, and storm water in the area of the kilns (including the catch basins designated catch basins # 5 and #6 by the EPA inspectors), drains to the "Pump pit" and may be subject to treatment. The "Pump pit" is located below ground and accessible inside a small, approximately 12 foot by 12 foot corrugated metal shack that is located immediately west of Kiln 2 (see Photo 44). Inside the Pump pit, which is approximately 12-foot by 12-foot square and 10-feet deep , there is a tank. (EPA inspectors were unable to ascertain the exact size of the Pump pit tank.) The tank has a baffle that separates it into two sides: untreated wastewater (non-contact cooling water and some storm water from kiln areas) flows into one side, and can be pumped over to the Facility's settling tanks for treatment. The other side of the "Pump pit" tank contains wastewater that has been treated in the Facility's settling pits (including pH adjustment if necessary). According to Mr. Falko, two sump pumps can move untreated wastewater via underground pipes to the Facility's settling basins located approximately 45 to 50 meters southwest of the "Pump pit."

The Facility's settling tanks consist of two (2) square, 25 feet by 25 feet. 6-feet- deep, open top, above-ground concrete tanks, arranged in a north-south configuration. Wastewater from one side of the "Pump pit" tank is pumped to the northern settling tank for treatment. According to Mr.

Falko, wastewater treatment consists of settling of suspended solids in the settling tanks and, if necessary, sulfuric acid addition for pH adjustment. The effluent from the settling tanks is monitored continuously for pH (and temperature) by a Walchem pH sensor. According to Mr. Falko, if the sensor detects that effluent leaving the settling tanks is above 9.0 (maximum pH stipulated in the Facility's NPDES permit for outfall 004), then chemical feed pumps are automatically activated. These feed pumps add small doses of concentrated (93%) sulfuric acid solution (H_2SO_4) to reduce pH to within the permitted 6.0 to 9.0 range. From the settling tanks, treated wastewater drains by gravity back to the other side of the baffle in the "Pump pit" tank.

Following treatment, the treated wastewater is discharged through an underground, 36-inch diameter, terracotta pipe, the main combined sewer line leading northward to outfall 004. During extended periods of rain, it is possible for IRM or calcine-contaminated quench water that has accumulated on the ground in the area around the quench tanks, or leached from piles of material in IRM and calcine bunkers, to co-mingle with storm water and reach storm sewer inlets just west of Kiln 2 (See **IRM Quench Water – Kiln 2** and **Calcine Quench Water – Kiln 1 in CWA-NPDES Observations**; See also **Photos 56 - 60**, **Photos 66 -72**, and **Photos 52-53**). According to Mr. Falko, in the event that water contaminated by direct contact with IRM or calcine flows into the Pump pit, it may be diverted to the settling tanks for treatment before discharge to outfall 004.

According to Mr. Falko and the Facility's 2015 NPDES permit application, there is no treatment for storm water that enters the storm water collection and drainage system associated with outfall 005.

Storm water collection and drainage system – Outfall 005 drainage basin

Storm water that falls on the central and western parts of the Facility (most of the area west of the kilns) runs over impervious surfaces until it reaches a storm water inlet. Each inlet consists of a metal grate over a rectangular catch basin, which is located in line with, or close to, one of five (5) main east-west trending storm sewer laterals. The laterals are numbered 1 through 5 from north to south (see Figure 3). Each lateral conveys collected storm water westward and empties into one (1) northward trending, underground, 36-inch diameter, terracotta pipe that discharges directly to outfall 005. "Lateral 5" is the southern-most storm sewer lateral, a galvanized carbon steel pipe that begins approximately 70 meters (233 feet) south of Kiln 6 and runs westward underground, past the south side of building 608 and outdoor coke storage piles, to the confluence with the main northward-running discharge pipe near at southwestern corner of the Facility's operations. According to the Facility's outfall and drainage map (Figure 3), the diameter of the "Lateral 5" pipe widens from 12 inches where it begins south of Kiln 6, to 21 inches as it passes south of building 608, to 60 inches where it meets the northward drainage pipe to outfall 005. Approximately 130 meters east of the western terminus of Lateral 5, the main drainage trench for the Cinder Bank joins Lateral 5. Storm water runoff from the Cinder Bank and flank of Blue Mountain runs on to the Facility's property and drains westward down the remainder of Lateral 5, then northward along the main discharge pipe to outfall 005. There is a weir and flow gauge at the point where the Cinder Bank drainage trench meets Lateral 5, on the Facility's southern border. At least twenty-one (21) catch basin inlets connect to Lateral 5 along its entire length, 18 of which are located to the east (upgradient) of the connection with the Cinder Bank drainage trench.

"Lateral 4" begins as a 12-inch diameter galvanized carbon steel pipe at a storm sewer catch basin located approximately 30 meters southwest of the "Lime Bunker," the three-sided structure where the Facility accumulates kiln rubble waste. The lateral runs underground northwest, passes beneath the "gallery belt" and "blender bypass" (elevated conveyor belts that move pelletized EAF dust and coke fines to the kilns), then turns westward and changes to a 12-inch diameter terracotta pipe. It then runs approximately 345 meters (1,130 feet) westward, passing between the Facility's maintenance shops and the north side of building 608, until it reaches the northward drainage pipe near the Facility's zinc metal powders building (building 611). The Facility's outfall and drainage map (Figure 3) shows at least eight (8) catch basin inlets are connected to Lateral 4 along its length.

"Lateral 3" begins as 6-inch diameter terracotta pipe with catch basin inlets located in the vicinity of the Facility's maintenance shop, runs underground to the north side of the maintenance shop, then turns westward and runs approximately 345 meters (1,130 feet) to the connection with the northward drainage pipe to Outfall 005. The Facility's outfall and drainage map (Figure 3) map shows at least eight (8) catch basin inlets connecting to Lateral 3.

“Lateral 2” begins as a 10-inch terracotta pipe at a catch basin located just south of the “Number 13 storage building” and runs approximately 275 meter (900 feet) westward to the connection with the main northward drainage pipe to outfall 005. It widens to a 15-inch diameter before its terminus at the northward drainage pipe. The Facility’s outfall and drainage map (Figure 3) shows at least eight (8) catch basin inlets connect to Lateral 2 along its entire length.

“Lateral 1” begins at a catch basin along the northern access road, north of “Number 12 storage building” and continues as a 12-inch diameter terracotta pipe westward approximately 220 meters (720 feet) to the main northward drainage pipe to outfall 005. The Facility’s outfall and drainage map (Figure 3) shows additional underground piping, originating in buildings that are now demolished (marked “Abandoned 1960’s”), may connect to the lateral, or may have connected in the past.

No treatment facilities exist for storm water in the outfall 005 drainage network.

Storm water collection and drainage system & French drains – Outfall 004 drainage basin

Drainage in the kiln area is generally northward towards the Aquashicola Creek. Surface runoff from the southern kiln area around the quench tanks moves northward over impervious surfaces or via shallow rills in bare soil, until it reaches a subtle topographic high in the access road that passes under the kilns. Inspectors observed that surface runoff moving northward from the quench tank areas of Kilns 1 and 2 forms puddles underneath the concrete support structures of Kiln 2 on the south side of the access road. If these puddles grow large enough in size, runoff may encroach on catch basins located in line with the combined sewer main that drains to outfall 004 (catch basins designated “5” and “6” in Figure 3).

According to the Facility’s outfall and drainage map (Figure 3), there is one (1) main south-to-north trending combined sewer drainage pipe in the kiln area, a 36-inch diameter terracotta pipe that originates at a sump (designated catch basin “17” in Figure 3) south of Kiln 2 and runs underground northward along the west side of Kiln 2, through the “Pump pit.” Just south of the railroad tracks that skirt the northern side of the kilns, this main combined sewer pipe runs directly northward towards the outfall 004 weir. However, according to the Facility’s outfall and drainage map, the combined sewer line does not intersect with the outfall 004 weir. Instead, the map shows the combined sewer line changes direction to the northeast at a manhole located near the northwest corner of the Kiln 2 baghouse. It runs diagonally northeast, bypassing the weir, before turning northward again to it terminus (end of pipe) on the Aquashicola Creek.

Surface runoff on the north side of the access road that passes under the kilns moves northward over impervious surfaces. Storm water is channeled northward in some places between the kilns through concrete swales. Northbound runoff then appears to infiltrate rapidly into the gravel railroad bed that runs east-west immediately north of the kilns. The Facility's outfall and drainage map (Figure 3) shows a dashed magenta line directly in line with the railroad bed and identifies this feature as a "line no longer in use." It is unclear if this "line no longer in use" was physically connected with outfall 004 drainage network at the time of the Inspection.

According to the outfall and drainage map (Figure 3), storm water that falls in the vicinity north of the Kiln 2 and Kiln 5 baghouses and the G&H building (building 644) may be collected by an elongated French drain. At the time of the Inspection, no schematics or other information about the construction of this French drains was available to the EPA inspectors. The Facility's outfall and drainage map indicates the French drain connects to a 36-inch diameter terracotta storm sewer pipe that runs northward underground until it reaches the outfall 004 weir (annotated as feature "19" in Figure 3) located along the Facility's northern access road. Another set of French drains is shown by the outfall and drainage map in the immediate vicinity of the outfall 004 weir and situated parallel to the northern access road. An ultrasonic level sensor, flow meter, and continuous pH sensor are located at the outfall 004 weir. According to Mr. Falko, the outfall 004 weir is where the Facility conducts its NPDES self-monitoring for outfall 004. Effluent spilling over the outfall 004 weir then enters another underground pipe, an extension of the 36-inch terracotta storm sewer pipe, continues northward under the northernmost railroad tracks, and then takes a 90 degree turn to the east. This pipe then connects at a manhole to the main 36-inch terracotta combined sewer pipe that conveys storm water and non-contact cooling water northward from the Pump pit. The combined discharge then drains northward to the outfall 004 end of pipe, located approximately 100 meters north on the Aquashicola Creek.

Photographs & Videos

The EPA Inspection team took a total of 392 photographs and 7 videos during the Inspection. 140 of the inspection photos and 3 of the Inspection videos are included in this report. The .JPEG or .MP4 file name for each digital photograph or video in this report is included in parentheses in the caption underneath each photo or video exhibit. Where two cameras used the same .JPEG file name, the camera that took those photos have been identified in the caption to avoid confusion. Photos 1, 92, and 96 in this report are .MP4 video files.

See Table 3 for a complete listing of photographs and videos taken by the EPA Inspection team. EPA inspector Eller provided a copy of all photos and videos to Mr. Basilone on a Read-only CD shortly after the Inspection for review by AZR for Confidential Business Information.

Photos 1-47, 50-105, and 108-118, 121-123 in this report were taken by EPA inspector Eller using a NIKON COOLPIX W100 digital camera.

Photos 48, 49, 106, 107, 119, and 120 in this report were taken by EPA inspector Kline using a NIKON COOLPIX P4 digital camera.

Photos 124-143 were taken by EPA inspector Jiménez using an iPhone 6s.

CWA-NPDES Inspection

EPA inspectors Eller, Kline, and Trakis conducted the CWA-NPDES portion of the Inspection from 14 May to 17 May, 2018. Eller, Kline, and Trakis read the Facility's NPDES permit, and observed the permit contains (but is not limited to) the following requirements and conditions:

1. The Facility is permitted to discharge storm water and non-contact cooling water from Outfall 004.

2. The Facility is permitted to discharge storm water and boiler blowdown from Outfall 005.

3. Part B, Paragraph E contains the "duty to mitigate" at 40 CFR § 122.41(d), which requires the Facility to "take all reasonable steps to minimize or prevent any discharge, sludge use, or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment."

4. Part B, Paragraph D contains the requirement for "proper operation and maintenance" at 40 CFR §122.41(e). This requirement states the Facility must "…at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit."

5. Part A, Section III.A.1 of the Facility's NPDES permit requires that "Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity."

6. Part A of the Facility's NPDES permit requires self-monitoring at Outfall 004 and Outfall 005.

7. Part A of the Facility's NPDES permit defines "At Outfall (XXX)" as "a sampling location in outfall line XXX below the last point at which wastes are added to outfall line (XXX), or where otherwise specified."

8. Storm water is defined in Part A of the Facility's NPDES permit as "the runoff from precipitation, snow melt runoff, and surface runoff and drainage."

9. Part A of the Facility's NPDES permit requires the Facility to monitor metals and TSS concentrations by collecting two (2) composite samples per month.

10. Part A, Section II of the Facility's NPDES permit requires composite samples for metals and TSS to be flow-proportional, or time-proportioned with time intervals proportional to flow.

11. Part A, Section III, C.2 of the Facility's NPDES permit requires the Facility to "give advance notice to DEP of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements."

The following CWA-NPDES observations may be relevant to the permit requirements and conditions noted above.

CWA-NPDES Observations

Storm Sewer Lateral 5

At approximately 12:20 on 14 May, 2018, EPA inspectors Eller, Kline, and Trakis began observations of the Facility's storm sewer system beginning with Lateral 5 near the roll-up door truck entrance on the south side of building 608 (the RCRA-permitted storage building for EAF dust). Four (4) storm water catch basins are located in the paved area in the vicinity of the truck entrance door. For the purpose of distinguishing these catch basins from other storm water drainage features at the Facility, the EPA inspectors designated these catch basins as "catch basin # 1" (See Photos 2 and 3), "catch basin #2" (See Photo 4), "catch basin 3" (See Photos 5 and 6), and "catch basin # 4" (See Photo 7). The location of catch basins #1 through #4 have been annotated in Figure 3. Each of these four catch basins connects to Lateral 5, which consists of a 21-inch diameter galvanized carbon steel pipe in this area that runs westward under the paved southern access road. Eller, Kline, and Trakis observed no physical storm water pollution prevention measures, (e.g. sediment filter fabrics) were present at catch basins #1, #2, #3, and # 4. EPA inspectors Eller, Kline, and Trakis observed that a large, elongated puddle of water was present on the pavement approximately 3-5 meters (10-15 feet) from the south wall of building 608, in front of the truck entrance roll-up door (see Photo 8). The EPA inspectors note that the Palmerton area had received rainfall over the weekend previous to the Inspection on Saturday 12 May – Sunday 13 May, 2018 (see NOAA precipitation data in Table 1). The water in the puddle appeared cloudy and discolored with brown suspended sediment (see Photo 9). EPA inspectors Eller, Kline, and Trakis observed that wet, brown, fine-grained material, with some gravel-sized clasts or clumps entrained in the fine matrix, along with brown, cloudy water, was present in the bottom of catch basins #1, #2, #3 and #4 (see Photos 2, 4, 5, and 7, respectively).

At approximately 12:57, the EPA inspectors observed a truck enter building 608 to make a delivery of EAF dust by backing through the open roll-up door (see Photo 10).

At approximately 13:04, EPA inspectors Eller, Kline, and Trakis observed the roll-up door of the building 608 truck entrance opened and a yellow Komatsu payloader backed out of the building. The payloader paused, then returned to the interior of building 608 and the door closed again. EPA inspectors Eller, Kline, and Trakis also observed some wet, brown sediment was present on the payloader's tires. EPA inspectors Eller, Kline, and Trakis observed that track-out marks, or streaks of brown, wet, fine-grained material, were visible on the pavement between the roll-up door and the puddle (see Photo 11). Signs of sediment transport and deposition (i.e., streaks or deposits of brown, fine-grained material on the pavement) were localized to the area between the building 608 truck entrance and the puddle. EPA inspectors Eller, Kline, and Trakis observed a gap was visible at the bottom of the truck entrance roll-up door in the closed position.

The EPA inspectors note that previous EPA laboratory analysis has described the Facility's EAF dust with coal/coke as a "dark brown, fine powder to very fine, gravel-sized (µm-mm) material with hard, sub-rounded grains" (EPA NEIC, 2018).

EPA inspector Trakis inquired how often the Facility cleans out its storm sewer catch basins. Mr. Falko replied that storm sewer cleaning is conducted on a yearly basis. EPA inspector Eller asked if the Facility had sampled or otherwise characterized the accumulations of brown, fine-grained material that was observed in the catch basins. Mr. Falko replied the Facility does not characterize the sediment and only samples the water discharge from outfall 005, as well as "Trench East" where storm water run-on from the Superfund site joins storm sewer lateral 5.

Catch basin # 1

At approximately 14:15, the EPA inspectors requested that the Facility remove the metal grate covering the inlet to catch basin # 1, located approximately 10-12 meters (30 to 40 feet) to the east-southeast of the building 608 truck entrance. A Facility forklift lifted the metal grate covering catch basin #1 (see Photo 3). EPA inspectors Eller, Kline, and Trakis observed there was wet, brown, fine-grained material caked on the outer edges of the metal grate. Deposits of wet, brown, fine-grained material with some gravel-sized clasts or agglomerations entrained in the finer matrix, were present in the bottom of catch basin #1 along with some water laden with brown suspended sediment (see Photo 12). At 14:45, EPA inspectors Kline and Eller collected an incremental sample of this wet, brown, fine-grained material utilizing a clean, disposable plastic scoop affixed to the end of a pole. At Mr. Falko's request, Eller and Kline also provided a split sample of the same material to the Facility. Facility employee Mr. David Kunkle was present for the sampling of the brown material and received the sample splits. EPA Inspector Kline probed the depth of the brown, fine-grained material by vertically pushing the end of a pry bar downwards through the layer of material until it made contact with the bottom of the catch basin. EPA inspectors Eller and Kline estimated that, based on the length of brown mud remaining on the pry bar when it was removed from the layer of brown material, approximately 10 to 12 inches of the material was present in the bottom of catch basin # 1 (see Photo 13).

At 15:15, EPA inspector Eller collected a grab sample, approximately 250 to 300 milliliters, of the brown, cloudy storm water in the puddle outside the building 608 truck entrance utilizing a clean, disposable plastic scoop to transfer the water into a pre-cleaned 64-ounce sample jar. Mr. David Kunkle was present for the sampling and received the sample splits on behalf of the Facility. Samples of water collected from the puddle near the building 608 truck entrance and brown, fine-grained material collected from a catch basin 1 are summarized in Table 2.

At 15:25, EPA inspectors Kline and Eller collected an additional grab sample of the brown, fine-grained material from the bottom of catch basin # 1 and screened it for elemental composition with a Delta Olympus X-Ray Fluorescence (XRF) analyzer operating in Soil mode. Results from this XRF screening (XRF screening # 1) are in Attachment 1 (CBI).

At approximately 10:20 on 15 May, 2018, EPA inspector Kline collected a grab sample of wet EAF dust from inside building 608 utilizing a clean, disposable plastic scoop. Kline then screened the EAF dust sample with the Delta Olympus X-Ray Fluorescence analyzer operating in Soil mode (XRF screening #2) on the same substrate as XRF screening # 1 (material from catch basin #1) Results from XRF screening # 2 are in Attachment 1 (CBI).

EPA Inspector Eller requested, and Mr. Falko provided, a copy of a receipt from the last time the Facility hired a contractor to perform routine cleaning or maintenance on its storm sewer system (see Attachment 2). Mr. Falko stated the last time the Facility performed storm sewer cleaning was October 2017. According to Mr. Falko, the last storm sewer cleaning was done by U.S. Environmental and consisted of a “jet combo” cleaning. Mr. Falko described the “jet combo” cleaning as follows: A high-pressure nozzle is inserted into the storm drain system to dislodge accumulated sedimentary material from the pipe walls with a water jet. The water jetting is combined with vacuum suction to remove the dislodged sediment. Mr. Falko stated that, during the last storm sewer “jet combo” cleaning, three loads of sedimentary material suctioned out of the sewer system were offloaded from a 1,000 gallon-capacity vacuum truck and placed back into the EAF pile in building 608.

EPA inspector Eller noted that, on 14 May, 2018, the EPA inspectors had visually estimated 10 to 12 inches of brown, fine-grained material had accumulated in catch basin # 1. EPA inspector Eller then asked Mr. Falko if, based on his knowledge of Facility operations, he could confirm that the observed depth of the material deposit in catch basin # 1 had accumulated since the last storm sewer cleaning in October 2017. Mr. Falko then stated that catch basin # 1 had not been included in the last round of storm sewer “jet combo” cleaning.

Coke storage piles & Cinder Bank Drainage Trench Weir

From the vicinity of the truck entrance to building 608 and catch basin 1, EPA inspectors Eller, Trakis, and Kline, escorted by Mr. Falko, walked approximately 175 meters westward along the southern access road to observe the point where the Cinder Bank drainage trench joins storm sewer lateral 5 at the southern boundary of the Facility. The EPA inspectors observed outdoor uncovered coke storage piles located to the west of building 608. EPA inspectors also observed coke fines accumulated in the concrete drainage swale that runs parallel to the southern access road and storm sewer lateral 5 (see Photo 14). At the Cinder Bank drainage trench connection to lateral 5, which Mr. Falko termed "Trench East", the EPA inspectors observed flow over a weir and a Sigma 970 flow meter recording continuous flow. The flow appeared clear and free of suspended sediment. Mr. Falko explained that, at this weir, he collects samples twice monthly to characterize "run-on" of storm water from the Superfund site. Mr. Falko stated these "run-on" samples are taken at the same time as samples collected from outfall 005.

Building 608 (RCRA-permitted storage for EAF dust)

At 09:34 on 15 May, 2018, EPA inspectors Eller and Kline and PADEP representative Akers, donned air purifying respirators and entered building 608 via the truck wash bays (building 624), escorted by Facility representatives Mr. Falko and Mr. Kunkle. Immediately prior to entering the building, at 09:38, EPA inspectors Eller and Kline observed a tractor trailer truck exiting the truck wash bays (building 624). EPA inspectors Eller and Kline observed that the treads on the tires of the rear wheels of the vehicle appeared to be coated with a thin layer of wet, brown dust. EPA inspectors Eller and Kline observed that the tires left brown streaks on the exterior pavement as the truck exited the wash bay (see Photo 15).

EPA inspectors note that brown streaks are also visible in an arc that originate at the wash bay exits and curve northward, on the aerial photograph available on Google Earth (see Figure 1b).

Upon entering building 608, EPA inspectors Eller and Kline observed a payloader was moving around the interior of the building, pushing EAF dust onto the main EAF dust pile, and observed that the roll-up door at the truck entrance was open (see Photo 16). It was unclear to the EPA inspectors why the roll-up door was still open. The door subsequently closed. EPA inspectors

Eller and Kline observed a gap, which appeared to be approximately ½ inch and through which sunlight was visible, remained at the bottom of the roll-up door when it closed (see Photo 17). EPA inspectors Eller and Kline observed the operation of the payloader, pushing and consolidating EAF dust onto the main pile (see Photos 18, 19, 20, and 21) and a remotely-controlled water cannon wetting down the EAF dust. The roll-up door remained closed until approximately 09:49, when it opened again and a tractor trailer truck backed into the building. The roll-up door then closed again. EPA inspectors Eller and Kline then witnessed the tractor trailer dump its load of EAF dust, as well as the plastic liner from the trailer, onto the floor (see Photos 22 and 23). EPA inspectors Eller and Kline observed the remotely controlled water cannon spraying a water stream onto the newly-dumped EAF dust to wet it down, and that a puddle of standing water was present on the floor of building 608. EPA inspectors Eller and Kline then witnessed a payloader move the EAF dust that was just dumped by the truck and reconsolidate it onto the main EAF dust pile. EPA inspectors Eller and Kline did not observe any floor drains inside building 608.

At approximately 10:45 on 15 May, 2018, EPA inspectors Eller and Kline returned to the building 608 truck entrance from the exterior of the building to make a closer examination of the gap they had observed at the bottom of the roll-up door while inside the building. With the roll-up door partially opened, EPA inspectors Eller and Kline observed a small concrete berm, approximately 1 to 2 inches high, was present across the doorway threshold. EPA inspectors Eller and Kline also observed dry, brown, fine-grained material with some larger angular or sub-rounded clasts or agglomerations, was present on the pavement surface on both the interior and exterior sides of the berm, and on top of the berm itself (see Photos 24 and 25). The material appeared to be substantially similar in color, grain size, and sorting as the material observed inside catch basin #1 on 14 May, 2018. Tire tread marks were visible in the fine-grained material. Additionally, EPA inspectors Eller and Kline observed a pile of brown sedimentary material that had flakes or chips of unidentifiable material, accumulated near the bollard on door's west side.

Building 624 (Truck wash bays)

At approximately 09:58 on 15 May, 2018, EPA inspectors Eller and Kline moved from the interior of building 608 through the interior passageway into the truck wash bays (building 624) to observe the washing of a truck that had just delivered a load of EAF dust. EPA inspectors Eller and Kline observed the interior roll-up door between Building 608 and Building 624 open to admit the truck into the wash bay, then close again. EPA inspectors Eller and Kline did not observe any gaps at the bottom of the interior roll-up door. EPA inspectors Eller and Kline then observed a Facility employee utilizing a pressure washer to spray the mud flaps and rear tires of the truck's trailer to remove brown, wet, fine-grained EAF dust that was coating the treads (see Photo 26). EPA inspectors Eller and Kline observed that the roll-up exit door on the east side of the bay was closed, but that a gap, through which sunlight was visible, was present under southern half of the door (see Photo 27).

According to Mr. Kunkle's estimate, approximately 20 trucks per day pass through the truck wash, and each wash uses 5 to 10 gallons of water. According to Mr. Kunkle, the water utilized to wash truck tires is potable drinking water.

EPA inspectors Eller and Kline observed that dirty wash water draining into a T-shaped floor drain (see Photo 28). The metal grate to the floor drain appeared to be partially caked with wet EAF dust (see Photo 29). EPA inspector Eller inquired where the floor drain leads to, and Mr. Kunkle replied that dirty wash water drains by gravity into a circular holding tank in a room adjacent to the southern-most wash bay.

At approximately 10:04, EPA inspectors Eller and Kline entered the room adjacent to the wash bays to observe the holding tank for dirty wash water. EPA inspectors Eller and Kline observed the holding tank was an open-top circular metal tank, situated below floor level inside a concrete pit, approximately 8 feet by 8 feet square, and covered by a metal grate (see Photo 30). Equipment described by Mr. Kunkle as an agitator, and pump, were present on top of the tank. EPA inspectors Eller and Kline observed the tank held brown water and appeared to be nearly full (see Photo 31). Due to the location of the holding tank inside the sump, EPA inspectors Eller and Kline could not estimate the size or capacity of the tank. EPA inspector Eller asked Mr.

Kunkle about the capacity of the holding tank. Mr. Kunkle replied that he was uncertain, but that it held “a few hundred gallons.”

EPA inspector Eller then asked about the disposition of the water in the holding tank. Mr. Kunkle replied by explaining that dirty wash water from the truck wash bays is stored in the holding tank, then pumped out to the water cannon utilized for dust suppression inside building 608. The dirty wash water supplements the “industrial water” supply to the cannon.

EPA inspector Eller made a verbal request on 15 May, 2018 and later a written request on 16 May, 2018, for any schematic or drawing of the truck wash system, including the associated tank and pipes to the water cannon. AZR replied via e-mail on 20 July, 2018 that there are no current drawings or schematics of the truck wash system.

Upon exiting the truck wash bays at approximately 10:19, EPA inspectors Eller and Kline observed a street sweeper truck operating on the paved area just east of the wash bay roll-doors (see Photo 32).

Storm Sewer Lateral 4

EPA Inspectors Eller and Kline observed “upstream” portions of Lateral 4 of the Facility’s storm sewer system located to the east of building 608 on 15 May, 2018 during dry weather, and again on 16 May, 2018 during rainy weather. The portions observed included two storm water catch basins on the western end of the lateral between building 608 and the Lime bunker. EPA inspectors designated these inlets as “catch basin # 9” and “catch basin # 15.”

Catch basin # 9

At approximately 15:12 on 15 May, 2018, during dry weather, EPA inspector Eller observed the storm water catch basin that is located approximately 30 meters (100 feet) west-southwest of the entrance to the Facility’s “Lime bunker” (where the Facility accumulates kiln rubble, a D006/D008 hazardous waste). EPA inspectors designated this inlet feature as “catch basin 9” (see Photo 33). According to the Facility’s outfall and drainage map (Figure 3) catch basin # 9 is the western terminus of storm sewer Lateral 4. EPA inspector Eller observed no physical storm water pollution prevention measures (e.g. filters) present at this inlet. EPA inspector Eller observed that catch basin # 9 was nearly full of cloudy, brown, sediment-laden water and appeared clogged (see Photo 34). The outlet pipe that runs north-northwest from this catch basin was partially submerged.

At approximately 11:50 on 16 May, 2018, during rainy weather, EPA inspector Eller returned to the area of catch basin #9, but could not see the inlet. Eller observed a large puddle of brown-colored storm water, had flooded the area, and was obscuring the inlet to catch basin # 9 (see Photo 35).

Catch basins # 15 and # 18

At approximately 10:23 on 15 May, 2018, during dry weather, EPA inspector Eller observed isolated puddles of water and water marks on the pavement (see Photo 36), originating near the lower portion of one of the large overhead conveyor belts which move EAF dust and coke feedstock up from the pelletizer building and eastward across the Facility to the kilns. The puddles appeared discolored and clouded with brown, fine-grained, suspended sediment. EPA inspector Eller noted the color and poor clarity of the water observed at this location were similar to the color and poor clarity of the storm water puddle outside the building 608 truck entrance. Eller followed the puddled water or water marks on the pavement approximately 5 to 10 meters north-northeast to a where they stopped at a storm water catch basin inlet (see Photos, 37, 38, 39, and 40, panning right). The location of this catch basin is approximately 30 meters (100 feet) east of where the southern-most gallery belt emerges from the pelletizer in building 608. EPA inspectors designated this inlet feature as "catch basin # 15." The outfall and drainage map (Figure 3) shows catch basin # 15 is the second catch basin located in line with storm sewer Lateral 4 (a 12-inch diameter galvanized carbon steel pipe). Another Lateral 4 inlet, designated by EPA inspectors as "catch basin # 18," is located approximately 20 feet (6 meters) to the east, and connects to catch basin # 15 via a 12-inch diameter galvanized carbon steel pipe. EPA inspector Eller observed signs of sediment transport and deposition consisting of an accumulation of wet, brown, fine-grained material, which appeared similar to the material that was observed by EPA inspectors inside catch basins # 1 through # 4 (and sampled from catch basin #1), on the pavement leading up to, and around the edges of, the metal inlet grate to catch basin # 15 (see Photo 41). Eller observed that brown water was present in the bottom of catch basin # 15 (see Photo 42).

At approximately 11:50 on 16 May, 2018, during rainy weather, EPA inspector Eller returned to the vicinity of catch basin # 15. Eller observed that storm water was actively flowing northward over the pavement, from the area immediately east of the truck wash bay (building 624) exit doors, towards catch basin # 15. Eller observed brown streaks on the wet pavement originating at the truck wash bay exit doors (see Photos 45 and 46) and sediment-laden storm water, discolored brown, moving northward towards catch basins # 15 and # 18. Additionally, Eller observed that brown, discolored storm water from the flooded area to the east (in the vicinity of catch basin # 9) was flowing northwest and entering catch basin # 18 (see Photo 47).

Catch basin # 16

At approximately 14:26 on 16 May, 2018, during rainy weather, EPA inspectors Eller and Kline observed the storm water inlet located on the west side of the "number 9 fan room." Mr. Falko explained the "number 9 fan room" is a motor control center for the induction fans in the Facility's baghouses ("product collectors") that capture CZO or $PbCl_2$. EPA inspectors designated this inlet feature as "catch basin # 16" (see Photos 48 and 49). According to the Facility's outfall and drainage map (Figure 3), catch basin # 16 connects to the main 36-inch diameter terracotta combined sewer pipe that runs northward to outfall 004 via a subterranean 6-inch diameter terracotta pipe that runs northwest, then west along the southern side of product collectors 2 and 5. EPA inspector Kline observed the inlet for catch basin # 16 appeared to be flooded with sediment-laden water, but was draining very slowly. An oil or sediment sock was in place around the inlet, held in place by two stones. EPA inspector Eller asked Mr. Falko when the storm sewer system in this area had last been cleaned, and Mr. Falko replied October, 2017.

Catch Basins # 5 and # 6

At approximately 11:50 on the morning of 15 May, 2018, EPA inspectors Eller, Trakis, and Kline observed the storm water catch basin located approximately 15 to 20 meters (50 to 60 feet) south of the Pump pit, adjacent to the concrete support structures at the southern end of Kiln 2. EPA inspectors designated this inlet feature as "catch basin # 5" (see Photo 50). Catch basin # 5 is was not shown on the copy of the Facility's outfall and drainage map acquired by EPA inspector Eller, but the map does show the words "Sump plugged" in the approximate location observed by EPA inspectors. According to the outfall and drainage map (Figure 3), storm water entering catch basin # 5 flows northward through the main 36-inch diameter terracotta storm sewer pipe to the Pump pit.

EPA inspectors observed the inlet to catch basin # 5 was covered with two metal plates, each plate marked with an orange traffic cone. Three sorbent "socks" were present, on the eastern, western, and southern edges of the inlet. EPA inspector Trakis inquired about the purpose of the metal plates and sorbent socks. Mr. Falko stated that the purpose of the metal plates was to close the catch basin, and that absorbent "diapers" had been placed under the rim of the inlet to the catch basin to act as a sort of "gasket" or seal around the edges. EPA inspector Eller asked why the Facility had closed this storm water inlet. Mr. Falko explained that, during heavy rains, water contaminated with IRM had been entering the storm sewer system via catch basin # 5, and causing the need for increased sulfuric acid addition for pH adjustment. EPA inspector Eller asked if catch basin #5 had been plugged with cement. Falko replied no, the catch basin had not been plugged with cement. EPA inspector Eller asked what happens if IRM-contaminated water bypasses the "closed" catch basin # 5 during heavy rain. Mr. Falko replied that, in such an event, excess storm water runoff continues to flow northward over the access road passing underneath the kilns, and reaches the storm water catch basin located immediately south of the Pump pit building. EPA inspectors designated this inlet as "catch basin # 6" (See photo 44).

EPA inspectors Eller and Kline returned to the vicinity of catch basin 5 during rain on 16 May, 2018 and observed that a large pool of co-mingled storm water and quench water was present underneath the concrete support structure of the lower end of Kiln 2 (see Photos 52 and 53; see also **Calcine Quench Water – Kiln 1**).

IRM Quench Water – Kiln 2

At approximately 12:05 on 15 May, 2018, during dry weather, EPA inspectors Eller, Trakis, and Kline observed the quench water tanks at the southern ends of Kilns 1 and 2. Kiln 2 was waelzing during the Inspection, and EPA inspectors observed hot IRM dropping from the bottom of Kiln 2 into the bath of "industrial" water in the quench tank (see Photo 54). Steam was rising from the quench tank and the "ski lift" style conveyor belt was moving quenched IRM upwards out of the tank, and dropping it onto an IRM pile inside an open concrete bunker. EPA inspectors Eller, Trakis, and Kline observed pools of dark yellow IRM quench water was seeping from the IRM pile (see Photos 56 and 57). EPA inspectors also observed that the odor of sulfur was present in the air. EPA inspectors Eller and Trakis also observed the dark yellow IRM quench water in a shallow swale on the ground (see Photos 57 and 58). EPA inspectors Eller and Trakis traced the IRM quench water in the swale northward and westward approximately 10-12 meters (30 to 40 feet), to a round earthen sump, located just southwest of the Kiln 2 quench tank. EPA inspector Eller estimated the sump was approximately 1 to 2 feet in diameter, but could not ascertain the depth of the sump because it was full nearly to the surface with dark yellow, cloudy quench water. EPA inspector Eller observed the top of a standpipe in the sump, connected to a length of flexible tubing, which ran back to the quench tank. Mr. Falko explained there was a submersible pump inside the sump, and that IRM quench water in the sump was pumped back into the quench tank. EPA inspector Eller did not visually observe or hear the sump pump operating during the Inspection.

EPA inspectors Eller and Kline observed the area around Kiln 2 quench tank again, during wet weather, beginning at approximately 11:40 on 16 May, 2018. Rain had fallen the previous day during the thunderstorm, and was also falling during the day on 16 May, 2018. IRM quench water was still present on the ground. The pools of dark yellow IRM quench water in front of the IRM bunker had expanded since the EPA inspectors observed them the previous day. EPA inspectors Eller and Kline observed more IRM quench water in the shallow swale leading to the earthen sump (see Photos 59 and 60).

At 09:55 on the morning of 17 May, 2018, EPA inspectors Eller and Kline collected a grab sample of IRM quench water from the earthen sump located just southwest of the Kiln 2 quench tank. EPA inspector Eller collected the sample by affixing a pre-cleaned 64-ounce glass jar to the end of a bottle dipper pole and tilting the glass jar so that IRM quench water from the sump filled the jar. EPA inspector Kline field tested the pH of the IRM quench water using a calibrated YSI 556 pH meter (see Photos 61 and 62– CBI). EPA inspector Eller submitted the sample of IRM quench water to EPA's Region III laboratory for total metals analysis. Due to the high pH measured in the field, Eller did not attempt to add acid preservative to the sample of IRM quench water. Acid preservative was subsequently added by laboratory chemists to extend holding time.

Laboratory analytical results for total metals, and the field pH measured by EPA inspectors Eller and Kline, are summarized in Table 2.

Calcine Quench Water – Kiln 1

At approximately 12:25 on 15 May, 2018, EPA inspectors Eller, Kline, and Trakis observed the area around the Kiln 1 quench tank. At the time of the Inspection, Kiln 1 was calcining. EPA inspectors Eller, Kline, and Trakis observed red-hot calcine dropping out of the bottom of Kiln 1 into the quench bath in the metal quench tank (see Photo 63). The EPA inspectors also observed, on the west side of the Kiln 1 quench tank, an open-top concrete box tank, measuring approximately 4 feet high, by 4 feet wide, by 10 feet long, and containing a baffle in the middle with two holes (see Photo 64). The tank appeared to be roughly half full of yellow quench water (see Photo 65).

EPA inspectors Eller and Kline returned to the area of the Kiln 1 quench tank at approximately 11:45 on the morning of 16 May, 2018. Rain had fallen the previous day during the thunderstorm, and was also falling during the day on 16 May. EPA inspectors Eller and Kline observed quench water present on the ground between Kilns 1 and 2. The quench water was yellow to reddish-yellow in color. The quench water on the ground appeared to originate on the west side of the Kiln 1 quench tank, and was trickling northward following the local topography. EPA inspector Eller traced the northward flow of quench water between Kilns 1 and 2 (see Photos 66 through 72 inclusive tracing the drainage of the reddish-yellow water), passing the open-top concrete tank associated with Kiln 1 quench water, and an open pile of calcine on the west side of Kiln 1. Red-hot calcine was dropping into the pile. EPA inspector Eller continued to follow the flow of quench water northwards to the concrete support structure at the south end of Kiln 2. EPA inspector Eller observed that the quench water was pooling underneath the concrete support structure, and comingling with brown-colored storm water. The pool of comingled quench water and storm water was approximately 20 feet by 20 feet, and appeared to be contained in the area directly below the support structure. EPA inspector Eller observed that the western edge of the pool of co-mingled quench water and storm water was immediately adjacent to catch basin # 5, the storm water inlet that Mr. Falko had indicated was closed due to past problems with contaminated storm water or quench water reaching the inlet (see Photos 52 and 53). A small berm approximately 4-6 inches in height, and made of brown, earthy material was located immediately east of catch basin # 5, between the two legs of the arch-shaped support structure. The berm appeared to be intended to stop the encroachment of the pool of co-mingled storm water and quench water on catch basin # 5's eastern edge. It was unclear to EPA inspector Eller what material had been used to construct the berm.

Wastewater Treatment System – Pump pit

EPA inspectors Eller and Kline observed the Facility's wastewater treatment system beginning at approximately 15:40 on 15 May, 2018. EPA inspectors Eller and Kline observed the interior of the "Pump pit" building, which is a corrugated metal shack (see Photo 73). Through the metal floor grating, Eller and Kline were able to partially observe the tank. EPA inspectors Eller and Kline could also see the concrete baffle that divides the tank, and observed the baffle had an estimated 6 to 12 inches of freeboard. EPA inspector Eller observed water was flowing into the west side of the tank (see Photos 74 and 75). Mr. Falko explained to the EPA inspectors that two sump pumps in the "Pump pit" can move incoming wastewater (consisting of non-contact cooling water and some storm water from the kiln areas) to the Facility's settling tanks for treatment.

Wastewater Treatment System – Settling Tanks

At 15:47 on 15 May, 2018, EPA inspectors Eller and Kline observed the Facility's settling tanks. Water was flowing into the northern settling tank. EPA inspectors Eller and Kline observed that the water in southern settling tank appeared a different color and clarity than the northern tank (see Photo 76). Mr. Falko explained that only the northern tank was operating at that time. Eller observed that both tanks had approximately 1 to 2 feet of freeboard. Eller and Kline observed no visible suspended solids in the northern settling tank.

At approximately 16:01, EPA inspectors Eller and Kline and Mr. Falko suspended their observation of the Facility's wastewater treatment system because of rapidly deteriorating weather conditions (see **Tuesday, 15 May, 2018** under **Weather Conditions**; See also **Photo 1** [Video]).

On 16 May, 2018, when EPA inspectors Eller and Kline returned to the settling tanks to inspect the pH adjustment system. EPA inspector Eller noted that the Facility's 2015 NPDES application stated that solids from the settling tanks are sent to a "landfill." EPA inspector Eller asked Mr.

Falko how often the settled solids are cleaned out of the settling tanks, and if the Facility makes a RCRA waste determination on the solids. Mr. Falko replied by saying he had not seen the settling tanks cleaned out since the beginning of his employment as Facility environmental manager in March, 2017. EPA inspector Eller requested verbally, and then in writing during the Inspection, a copy of analytical results for any solids removed from the settling tanks for disposal. In AZR's reply to EPA's 18 April, 2018 Information Request Letter, AZR stated that "solids periodically removed from the settling chambers are recycled at the Facility."

Wastewater Treatment System – pH adjustment

At 10:46 on 16 May, 2016, EPA inspectors Eller and Kline observed the pH adjustment system for wastewater leaving the settling tanks (see Photos 77 and 78). Mr. Falko explained to the EPA inspectors how the acid adjustment system works, and showed the inspectors the sulfuric acid tank and chemical feed pumps. EPA inspectors Eller and Kline observed that the tank appeared to be in sound condition, with no signs of leaks or spills. The tank was situated inside secondary containment, consisting of a brick walled area, approximately 6 by 6 feet square, and 2 to 3 feet high. Spill kits were present nearby. Mr. Falko stated the sulfuric acid tank had an approximate capacity of 400 gallons. Eller and Kline observed that pH and temperature were being continuously monitored by a Walchem brand meter.

Lime Bunker

At 14:58 on 15 May, 2018, during dry weather, EPA inspectors Eller and Kline observed the "Lime bunker" (see Photo 79). The Lime bunker was not shown on the outfall and drainage map submitted by the Facility with its 2015 NPDES application, but was shown on the updated outfall and drainage map (Figure 3) submitted by the Facility in response to EPA's 18 April, 2018 Information Request Letter, subsequent to the Inspection. The Lime bunker is a three-walled shed with a corrugated metal roof, located approximately 50 to 100 meters east of building 608. The Lime bunker is open on its west side. EPA inspector Eller asked what the purpose of the Lime bunker is, and Mr. Falko explained that kiln rubble, which the Facility manages as a hazardous waste (EPA waste codes D006 and D008), is temporarily accumulated in the Lime bunker before transport off-site. EPA inspectors Eller and Kline observed that a pile of kiln rubble material, approximately 8 to 10 feet high, was present inside the Lime bunker, situated against the back wall (see Photo 80). EPA inspectors Eller and Kline observed that no physical runoff control measures (e.g. berms) were present along the open side (west side) of the Lime bunker. The nearest storm water inlet observed by the EPA inspectors is catch basin # 9, approximately 30 meters (100 feet) to the west-southwest.

On the morning of 16 May, 2018, during rainy weather, EPA inspectors Eller and Kline observed the Lime bunker again. Eller and Kline observed storm water runoff in the vicinity of the Lime bunker was moving westward and pooling in the vicinity of catch basin # 9 (see Photo 35). With respect to storm water exposure, the EPA inspectors note that kiln rubble inside the Lime bunker did not appear to be in contact with storm water runoff during the Inspection.

Kiln 2 and Kiln 1 Areas & Adjacent Railroad Bed

At approximately 15:17 on 15 May, 2018, during dry weather, EPA inspector Trakis observed the area at the north end of Kiln 2, near the railroad tracks, between Kiln 2 and former Kiln 3. EPA inspector Trakis observed that the area has impervious surface cover up to the railroad bed. EPA inspector Trakis observed that a concrete swale is present along the west side of Kiln 2 to facilitate the northward drainage of storm water (see Photo 81).

At approximately 15:37 on 15 May, 2018, EPA inspector Eller observed the area between the north end of Kiln 2 and the north end of Kiln 1. EPA inspector Eller observed the area has impervious surface cover up to the railroad bed. EPA inspector Eller observed a concrete swale, located immediately west of Kiln 1, between Kilns 1 and 2, which appeared very similar to the swale observed by EPA inspector Trakis west of Kiln 2. EPA inspector Eller observed the swale, which runs northward to the railroad bed, was partially filled with poorly sorted, predominantly light brown, but also grey and black sedimentary material, that ranged in size from fine, silt-sized material to larger gravel-sized clasts or clumps (see Photo 82). EPA inspector Eller following the concrete swale northward and observed deposits of the material were covering the railroad bed from the mouth of the concrete swale to a point along the railroad tracks approximately 20 feet (6 meters) to the west (see Photos 82 through 85 inclusive). Additionally, black, sandy or gravel-sized material was present along the south side of the railroad tracks between Kilns 1 and 2.

At approximately 11:36 on 16 May, 2018, during rainy weather, EPA inspector Eller again observed the concrete swale located immediately west of Kiln 1. Eller observed the swale was full of storm water, discolored brown, flowing northward and pooling on the railroad tracks (see Photos 86-89 inclusive).

With respect to the sedimentary deposits of black and brown material observed in the concrete swale between Kilns 1 and 2, on the south side of the railroad bed, and on the railroad tracks, the EPA inspectors note that the area between Kilns 1 and 2 south of the railroad bed is entirely impervious concrete surface cover. EPA inspector Eller notes that the source of the sedimentary deposits located adjacent to, and on the tracks, appeared to be the black material and brown material that was visible on top of the impervious surface, and partially filling in the swale.

Kiln 5 and Kiln 6 Areas & Adjacent Railroad Bed

At approximately 15:19 on 15 May, 2018, EPA inspector Trakis observed a pile of kiln brick waste, located beneath Kiln 5 (see Photos 90 and 91). According to Mr. Falko, at the time of the Inspection, Kiln 5 had recently been out of service for replacement of the kiln's refractory brick. EPA inspector Trakis observed the pile of refractory brick waste was at least 10 to 12 feet high (up to the metal I-beams underneath the kiln) and approximately 20 feet long by 15-20 feet wide. The pile of kiln brick waste was situated on the ground, not covered or contained. EPA inspector Trakis asked Mr. Falko when Kiln 5 had been taken out of service and when the pile of kiln brick waste had been generated. Mr. Falko stated that he would check the dates Kiln 5 had been out of service, but did not later provide this information verbally or in writing. EPA inspector Trakis asked where storm water in the kiln areas flows to when it rains, and Mr. Falko stated that storm water flowing from the kiln areas "dies" at the railroad tracks, located just north of the kilns.

EPA inspectors Eller and Kline observed the area between Kilns 5 and 6, during wet weather, beginning at approximately 11:25 on 16 May, 2018. Steady rain was falling at that time. EPA inspectors Eller and Kline observed visible northward sheet flow of storm water runoff over the impervious surface between Kilns 5 and 6 (see Photo 92 [Video]). EPA inspectors Eller and Kline observed an orange Doosan DL 420 payloader was scooping up kiln brick waste (see Photo 93) from the pile observed by EPA inspector Trakis the previous afternoon. EPA inspectors Eller and Kline observed that kiln brick waste was partially covered from exposure to storm water by its location beneath Kiln 5, and partially exposed to storm water. EPA inspectors Eller and Kline also observed some kiln brick waste was situated to the north along the railroad tracks, in the path of northward sheet flow, and in direct contact with, storm water runoff (see Photo 94). EPA inspectors Eller and Kline observed that storm water runoff was accumulating in pools along the south side of the railroad bed as it moved northward off the paved area between the kilns (see Photo 95). From there, storm water flowed westward approximately 6 meters (20 feet) along the railroad bed, then flowed onto the tracks and was disappearing rapidly into the coarse gravel of the railroad bed. The storm water runoff appeared discolored brown with suspended sediment and had poor clarity (see Photo 96 [Video]).

EPA inspector Eller subsequently discussed these observations with Mr. Logelin, and inquired if the railroad bed was constructed with any subsurface features, such as pipes, to facilitate storm water drainage. Mr. Logelin replied he was uncertain of the construction of the railroad bed, but noted that a cursory internet search returned examples of railroad beds constructed with perforated pipe below ground to collect and distribute storm water runoff into the subsurface.

With respect to the rapid disappearance of brown storm water under the railroad bed, the EPA inspectors note the outfall and drainage map (Figure 3) shows a dashed magenta line in the same location as the railroad tracks immediately north of the kilns (see Figure 3). The dashed magenta line is labeled on the map as "not functional." In AZR's response to EPA's 18 April, 2018 Information Request Letter, the dashed magenta line is identified in the map legend as "Line no longer in use."

Additionally, the EPA inspectors observed two features not shown on the outfall and drainage map – a manhole and a sump – designated features "10" and "11", respectively. Features 10 and 11 are located immediately adjacent to the tracks just west of former Kiln 3 (see discussion of **Unmapped Manhole and Sump – "Features 10 & 11"**).

Non-Contact Cooling Water (NCCW) System

The Facility's non-contact cooling water system is not shown on the drainage and outfall map submitted by the Facility with its 2015 NPDES application. The Facility did, however, submit general process flow diagrams with its NPDES application (see Attachment 6). These diagrams do not show piping and instrumentation, nor indicate how the "industrial" water supply enters the Facility, but the diagrams do indicate that the Facility uses NCCW for the pyrometer jackets on the kilns, clutch drives on Kilns 2 and 6, and bearings on all kilns.

At approximately 11:15 on 16 May, 2018, EPA inspectors Eller and Kline observed portions of the Facility's non-contact cooling water (NCCW) system. Mr. Falko showed the inspectors where incoming "industrial" water passes through manifolds to cool rotary bearings on Kiln 6 (see Photo 97). Kiln 6 was not operating at the time of the Inspection. EPA inspectors Eller and Kline traced the outflow pipe for NCCW from the bearing to a vertical pipe that goes underground. EPA inspector Eller asked Mr. Falko where the underground portion of the NCCW outflow pipe goes to, and Mr. Falko replied that it drains to the "Pump pit" for treatment, then discharge from outfall 004. EPA inspector Eller followed the pipe containing NCCW return flow from the bearing all the way to wear the pipe disappeared below ground (see Photo 98).

Sump 13

At approximately 15:40 on 15 May, 2018, EPA inspector Eller observed a concrete feature located between Kiln 2 and former Kiln 3 that is shown simply as "sump" on the outfall and drainage map (Figure 3). EPA inspectors designated this feature as feature "13" to distinguish it from the various other sumps and catch basins at the Facility. The map shows sump "13" to be in-line with the main combined sewer line leading to outfall 004. The feature consisted of a sump, or pit, with a concrete slab roof, measuring approximately 6 by 8 feet, and raised approximately 1 to 2 feet above ground level (see Photos 99 and 100). EPA inspector Eller observed an elevated horizontal pipe, approximately 1 to 2 inches in diameter, running eastward from Kiln 2, then downward at approximately 45-degree angle into a hole in the concrete roof of "sump 13." On closer examination, EPA inspector Eller observed that a steady trickle of water was flowing through the pipe into sump "13" (see Photos 101 and 102). EPA inspector Eller also observed other pipes connected to the pit. EPA inspector Eller inquired about the purpose of sump "13" and the origin of the water observed flowing into the pit, downstream from the Facility's wastewater treatment system. Mr. Falko stated during the Inspection that he did not know. Later, Mr. Falko stated that Mr. Dave Kunkle explained the observed water as cooling water for a support to the Kiln 2 feed pipe. Mr. Falko stated he was doubtful of this explanation.

EPA inspector Eller notes that the flow diagram for outfall 004 submitted with the Facility's 2015 NPDES permit application (Attachment 6) indicates the presence of a "kiln feed tube support cooling (covered)" downstream of the Facility's treatment system and pump pit

EPA inspector Eller asked verbally and in writing during the Inspection for a Facility representative to explain the purpose of the observed feature and water flow. AZR responded via e-mail on 20 July, 2018 with the following explanation:

> "The water observed draining from the riser pipe near the Kiln #2 dust catcher is from a sink located inside the adjacent building. The building is used by employees to monitor the kiln feed systems and to take breaks. AZR intends to connect this pipe to the sanitary sewer system, which is expected to be completed before the end of September 2018."

EPA inspectors Eller and Kline also observed a roll-off dumpster situated adjacent to former Kiln 3 that was approximately half to three-quarters full of grey, fine-grained material. In addition, Eller and Kline observed some black, granular material on top of the grey, fine-grained material. The dumpster was not labeled. The dumpster did not have a lid or cover. See Photos 117 and 118.

French Drains

The outfall and drainage map (Figure 3) indicates "French drains" in the immediate vicinity of the outfall 004 weir. EPA inspectors Eller and Kline observed the top of the French drains on the afternoon of 15 May, 2018. Eller and Kline observed cobble-sized rocks covering the ground on both the east and west sides of the outfall 004 weir, corresponding to the location on the map where "French drains" are marked (see Photo 103).

The Facility's outfall and drainage map (Figure 3) indicates there is an additional "French drain" feature located approximately 40 to 50 meters (130 to 165 feet) to the south of the outfall 004 weir, adjacent to the north side of building 644 (CZO storage) (See Figure 3). According to the outfall and drainage map, this feature connects to the outfall 004 weir via a 36-inch diameter terracotta underground pipe. The EPA inspectors did not observe the area on the surface corresponding to the "French drain" feature adjacent to the north side of building 644.

EPA inspector Eller requested from Mr. Falko and Mr. Logelin, verbally, and requested from AZR in writing, construction schematics for the French drain features indicated near the outfall 004 weir. Mr. Basilone responded via e-mail on 20 July, 2018 that there are no schematics for the French drains. EPA inspectors could not visually observe the subsurface dimensions or construction of the “French drains” except for the cobble-sized rocks visible at the ground surface near the outfall 004 weir.

Outfall 004 Weir

According to Mr. Falko, the Facility conducts its sampling for self-monitoring of the outfall 004 discharge at the outfall 004 weir pit.

The weir for outfall 004, along with an ultrasonic level indicator for monitoring flow over the weir, and a continuous pH sensor, is located in a pit, approximately 220 meters (730 feet) east of the Facility’s main entrance guard house, along the northern access road (see Photo 103). The location is annotated on the outfall and drainage map (Figure 3) as feature “19.” The map indicates the weir is connected to a 36-inch diameter terracotta pipe that originates at a “French drain” located just north of the “G&H building” (building 644), where CZO is stored. This pipe runs northward underground approximately 100 meters until it intersects the 004 weir. Effluent water then spills over the weir, where flow and pH are monitored, then back into another underground terracotta pipe which conveys the water under the northern access road . The drainage then makes a 90 degree turn eastward and joins with the Facility’s main combined sewer pipe (another 36-inch diameter terracotta pipe) that conveys non-contact cooling water and storm water from the kiln areas northward to the outfall 004 end-of-pipe.

EPA inspectors note the outfall and drainage map (see Figure 3) indicates the Facility’s main combined sewer pipe, starting at the Pump pit, runs northward directly in line with the outfall 004 weir until it reaches a manhole just northwest of the Kiln 2 baghouse (“product collector”). Here, the main combined sewer line changes direction and runs diagonally northeast, bypassing the weir (see Figure 3), before turning northward again to its terminus (end of pipe) at the Aquashicola Creek. The outfall and drainage map submitted by AZR in response to EPA’s 18 April, 2018 Information Request Letter shows the same configuration of drainage pipes.

EPA inspector Eller observed the water flowing over the outfall 004 weir on two separate occasions:

Outfall 004 weir – First observation and effluent sampling

At approximately 16:55 on 15 May, 2018, approximately 55 minutes after a strong thunderstorm had passed over the Facility, EPA inspector Eller observed the effluent at the outfall 004 weir. At the time of the observation it was no longer raining. The water appeared brown and clarity was poor (see Photo 104). EPA inspectors Eller and Kline collected grab samples of the effluent flowing over the outfall 004 weir by affixing 64-ounce pre-cleaned glass jars to the end of a bottle dipper pole. EPA inspector Eller collected two full 64-ounce jars of effluent to be submitted to EPA's laboratory for total metals and total suspended sediment analysis. EPA inspector Eller also provided two full 64-ounce jars of effluent to Mr. Christopher Logelin who requested split samples. Mr. Logelin was present to observe the sampling and received the split samples on behalf of the Facility. EPA inspector Eller also collected a field blank of deionized water to characterize the contribution of any airborne deposition. Samples of water collected from the outfall 004 weir are summarized in Table 2.

Outfall 004 weir – second observation

EPA inspector Eller observed the discharge at the outfall 004 weir again the next morning at 09:30 on 16 May, 2018 (approximately 17.5 hours after the 15 May, 2018 thunderstorm passed and intermittent rainfall throughout the night and following morning). At the time of the of the second observation of the Outfall 004 Weir, the discharge appeared clear and free of visible suspended sediment (see Photo 105).

Outfall 005 Weir

EPA inspectors Eller and Kline observed the effluent flowing over the Outfall 005 Weir, during rainy weather, at 14:05 on 16 May, 2018. The weir is situated at the downstream edge of a weir box, located approximately 50 to 60 meters south of the bank of the Aquashicola Creek (The Outfall 005 weir is annotated in Figure 3 as feature "20"). Water flowing over the weir discharges into an open channel that runs northward to the creek. EPA inspectors Eller and Kline observed two booms across the drainage channel for the capture of oil and grease (see Photos 106 and 107). According to the Facility's outfall and drainage map, the 36-inch diameter terracotta storm sewer pipe that collects westward-flowing storm water from all five storm sewer laterals, connects to this weir box. Eller and Kline could not observe the end of this terracotta pipe in the weir box because the water level in the box was too high. Effluent flowing over the weir appeared brown, with poor clarity. Mr. Falko stated that water level was high. An ultrasonic flow meter and continuous pH sensor were present at the outfall 005 weir.

Unmapped Manhole and Sump – "Features 10 & 11"

At approximately 15:25 on 15 May, 2018, EPA inspectors Trakis, Kline, and Eller observed two features that were not shown on the outfall and drainage map submitted with the Facility's 2015 NPDES application. The first feature was a rectangular sump, with approximate dimensions of 5 by 8 feet, and at least 5 feet deep, covered by a metal plate, located just west of former Kiln 3, immediately adjacent to the railroad tracks (see Photo 108). EPA inspectors designated this feature as sump "11" to distinguish it from other sumps and catch basins at the Facility. EPA inspector Eller observed deposits of black, granular sedimentary material adjacent to the sump on the railroad bed. At Eller's request, Kline and Falko lifted the metal plate covering sump "11" so Eller could observe the interior (see Photo 109). Eller observed a portion of the interior; Deposits of wet, brown, fine-grained muddy material were visible, along with a pool of water, inside sump "11." Eller could not observe any pipes connecting to the sump. Eller inquired about the purpose of sump "11," and why it is not shown on the Facility's outfall and drainage map. Mr. Falko stated he did not know.

Approximately 10 meters (30 feet) west of sump "11," EPA inspectors Trakis, Kline, and Eller observed the second feature not shown on the outfall and drainage map, a manhole. EPA inspectors designated the manhole as feature "10." The manhole was marked with a traffic cone (see Photo 110). Mr. Falko stated he did not know if manhole "10" was connected to the Facility's storm sewer or industrial wastewater system. It is unclear to the EPA inspectors whether manhole "10" is connected to the Facility's industrial wastewater system, storm sewer system, or sanitary sewer system.

$PbCl_2$ supersacks

At approximately 14:40 on 16 May, 2018, during rainy weather, EPA inspectors Eller and Kline observed the paved area approximately 100 meters northeast of the Kiln 6 baghouse ("product collector"), adjacent to building 616, and observed large pools of storm water on the impervious surface in this area. At least thirty (30) supersacks were stored outdoors on wooden pallets in this area (see Photos 119 and 120). EPA inspector Eller inquired about the contents of the supersacks and Mr. Falko replied the supersacks contained lead chloride ($PbCl_2$).

$PbCl_2$ release

At approximately 10:17 on 17 May, 2018, EPA inspectors Kline and Eller observed the Kiln 1 baghouse ("product collector"). EPA inspectors Eller and Kline observed a white, granular material on the ground near the baghouse. EPA inspector Eller inquired about the material and Mr. Falko stated it was lead chloride. Eller asked where the lead chloride has come from, and Mr. Falko explained there had been a lead chloride release within the last 24 hours (See Photos 111 and 112).

Self-monitoring program

Part A of the Facility's NPDES permit requires the Facility to characterize the flow conditions, pH, and concentrations of zinc, lead, cadmium, total suspended sediment (TSS), and oil and grease in the discharges at outfall 004 and outfall 005. The permit specifies numeric effluent limits at outfall 004, while the Facility is required to monitor and report only at outfall 005.

EPA inspector Eller asked Mr. Falko to explain the Facility's procedures for self-monitoring at outfall 004 and outfall 005.

Location of Self-monitoring

Mr. Falko stated that the sampling points for the self-monitoring required by Part A of the Facility's NPDES permit are the outfall 004 weir for outfall 004 and outfall 005 weir for outfall 005. Mr. Falko stated that, for composite samples required for self-monitoring of outfall 004, he sets up a HACH composite sampler on the metal platform situated inside the outfall 004 weir pit, and drops the sampler's intake on the downstream side of the weir.

The EPA inspectors note that, according to the Facility's outfall and drainage map, the outfall 004 weir is not in line with the main combined sewer line, nor directly connected to, or in line with, the Facility's wastewater treatment system (settling pits and pH adjustment). See **Outfall 004 weir** above.

Timing and Method of Self-monitoring

EPA Inspector Eller asked Mr. Falko to explain the methodology used to collect the composite samples required by Part A of the Facility's NPDES permit. Mr. Falko stated that he programs the HACH sampler to collect a time-composited sample. The HACH sampler's pump grabs a 150 mL volume of effluent once each hour, over a 24-hour period. Mr. Falko stated that, during winter months, the time interval between grabs may be decreased to 25 mL every 15 minutes in order to keep water flowing through the sampler's tubing to prevent freezing. All 24 hourly grab samples are composited into one (1) plastic container.

EPA inspector Eller asked Mr. Falko to describe the timing of self-monitoring samples. Mr. Falko stated that he typically sets up the HACH composite sampler and starts the program on a Wednesday, before 12:00 noon. He returns 24 hours later, on Thursday morning, to collect the first 24-hour composite, which is termed "Sample A." For example, the first 24-hour composite sample collected from the outfall 004 weir is called "004A" and the second 24-hour composite called "004B." According to Mr. Falko, Sample A is labelled and placed into a refrigerator, located inside a locked cage inside storage building 13. Mr. Falko stated the sample containers are not sealed. EPA Inspector Eller asked Mr. Falko who has access to the cage, and Mr. Falko replied that he, and Facility environmental technician Larry Borger, have access.

Mr. Falko explained that, after securing Sample A in the refrigerator, he resets the sampler and begins the 24-hour composite program again. Then, Mr. Falko returns 24 hours later, on Friday morning, to collect the second 24-hour composite sample, termed "Sample B." Mr. Falko stated that the Facility turns over custody of its samples directly to a representative of Hawk Mountain Labs (PADEP lab accreditation number 40 00417). Mr. Falko stated that Hawk Mountain Labs normally sends a representative to the Facility on Fridays to collect samples from the Superfund site, so Fridays are when the transfer of custody takes place.

Mr. Falko did not elaborate on which Wednesday and Thursday of any given month that self-monitoring is conducted.

EPA inspector Eller inquired about the timing of sampling at the outfall 004 weir with respect to rain events. Both Mr. Falko and Mr. Logelin, independently, stated that the Facility does not intentionally sample its effluent during rain events, nor does it make any adjustments to its self-monitoring schedule to characterize its effluent during, or just after, storms.

EPA inspector Trakis compared dates of the Facility's self-monitoring to records of precipitation recorded at the three closest NOAA rain gauges to the Facility. For the time period of January 2015 to December 2017, sixteen out of seventy-two (16/72) of the Facility's self-monitoring dates correspond to dates when 0.1 inches or greater of precipitation was recorded at the Palmerton, Lehighton, or Bowmanstown rain gauges (NOAA land-based stations PALMERTON 5.8 ENE, PA US US1PACB0004, LEHIGHTON 1 SSW, PA US USC00364934, and BOWMANSTOWN 3.0 WSW, PA US US1PACB0012).

pH monitoring

EPA inspector Eller asked Mr. Falko to describe the process for monitoring and reporting pH. Mr. Falko explained that, for Mondays through Fridays, he collects a grab sample at each outfall sampling location (the weir boxes) and measures the pH with a portable HACH pH meter. This daily number is reported on the Facility's monthly Discharge Monitoring Report. For Saturdays and Sundays, the pH meters located at each outfall weir take readings at 07:00 and 19:00 and recorded on a data logger. Mr. Falko stated that the 07:00 reading is reported on the Facility's Discharge Monitoring Reports for Saturdays and Sundays.

Quality Assurance and Control Measures

EPA inspector Eller inquired if the Facility collects field blanks to characterize ambient sources of contamination, such as airborne deposition of dust. Mr. Falko replied the Facility does not collect field blanks.

EPA inspector Eller inquired how often the intake tubing and pump tubing for the HACH composite sampler is decontaminated or changed. Mr. Falko replied he has not decontaminated or changed the tubing since beginning his employment with the Facility in March, 2017.

EPA inspector Eller inquired if the Facility adds any chemical preservatives to its samples. Mr. Falko replied that the sample containers utilized by the Facility are provided by Hawk Mountain Labs and already have laboratory-supplied acid preservative in the containers.

EPA inspector Eller inquired about how the pH meters (the hand-held HACH meter, the Walchem meter located at the settling pits, and the Pulse Instruments pH meter located at the outfall 004 weir) are calibrated. Mr. Falko explained the calibration process for the HACH hand-held meter. Falko described a two-point calibration using standards 4 and 7. Eller asked how often the meter is calibrated, and Mr. Falko stated he calibrates the meter before each use.

Mr. Falko also explained the calibration process for the Walchem meter at the setting pits. The calibration of this instrument, according to Mr. Falko, is a 3-point calibration using standards of 4, 7, and 10, and the process typically takes about 45 minutes because the pH sensor probe must be raised out of a vertical pipe. EPA inspector Eller asked how often the Walchem meter is calibrated, and Mr. Falko replied that it is only calibrated when Mr. Falko thinks it needs to be calibrated, typically twice a year in the summer and winter, or when pH readings at the settling tanks are inconsistent with pH readings at the outfall 004 pH meter.

EPA inspector Eller asked what happens if the Facility's automated pH meter at the outfall 004 weir detects a pH that is outside the limits in Part A of the Facility's NPDES permit after normal daytime working hours. Mr. Falko explained that, in such an occurrence, an alarm would sound at the Facility's main guard shack. Mr. Falko stated that he would be notified by the guard of the alarm and would then instruct the shift foreman to verify the pH at the outfall 004 weir utilizing the hand-held HACH meter. Eller asked if the shift foremen were trained to calibrate the HACH pH meter, and Mr. Falko replied that the shift foreman would not attempt to calibrate the instrument, and would simply take a reading.

EPA inspector Eller inquired about the Facility's procedures for reporting self-monitoring analytical data. Mr. Logelin explained that Mr. Falko receives analytical results from Hawk Mountain labs, and reports them on the Facility's Discharge Monitoring Reports. Mr. Logelin stated that he also receives copies of the analytical results and "QCs" these results by comparing them to previous results. Mr. Logelin stated that, if analytical results are different from past results, he thinks this is either the result of a "bad sample" or "bad analysis."

Discharge Monitoring Reports & Chain of Custody records

EPA inspector Eller requested, and Mr. Logelin provided, copies of the Facility's Discharge Monitoring Reports (DMRs) and associated Chain of Custody records, for calendar years 2015, 2016, and 2017. EPA inspector Eller reviewed the DMRs and Chain of Custody records, and notes the following observations:

1. Chain of Custody records from January 2015 through March 2016 indicate the matrix of samples submitted to Hawk Mountain Labs is "other" with the abbreviation "SW." It is not clear what "SW" means, but the EPA inspectors note that "SW" is a common abbreviation for "storm water" or "surface water." All Chain of Custody records after March, 2016 indicate the matrix is "Non-potable water."
2. Chain of Custody records after March, 2016 are in a different format than Chain of Custody records before March, 2016. Those records after March, 2016 do not indicate the analytical method requested by the Facility, so the EPA inspectors cannot verify if methods used to analyze these samples met the requirements of 40 CFR Part 136 based on examination of the records submitted. The EPA inspectors note that Hawk Mountain Labs is certified by the PADEP for analysis of non-potable water.
3. The Facility reported a minimum daily pH of 2.2 at outfall 004 in January, 2015.
4. The Facility reported a maximum daily pH of 10.10 at outfall 004 on the February, 2015 DMR. The Chain of Custody record corresponding to this DMR indicates a pH for sample 004B of 10.5.
5. The Facility reported a monthly average for zinc of 2.17 mg/L and a daily maximum for zinc of 4.03 mg/L at outfall 004 in February, 2015.
6. The Facility reported a maximum daily pH of 9.0 at outfall 004 for the month of August, 2015.
7. The DMR for February 2016 at outfall 004 states the monitoring period (format YYYY-MM-DD) is "2016-01-02 to 2016-02-29."
8. The Facility reported a minimum daily pH of 4.34 at outfall 004 in November, 2016. Additionally, the field pH noted on the Chain of Custody record for sample 004A (composite sample for the 24-hour period from 11:56 on 14 November 2016 to 11:56 on 15 November, 2016) is 5.05.

9. The Facility reported "ND" for Oil and Grease at outfalls 004 and 005 for the month of November, 2016. The EPA inspectors note that, while "ND" is a common abbreviation for "Non-detect," this is inconsistent with the reporting method for Oil and Grease on other DMRs, which simply state the concentration is less than the laboratory's detection limit (for example, the October, 2016 DMR reports the concentration of Oil and Grease at outfall 004 as < 5.32 mg/L. The EPA inspectors note that a detection limit for oil and grease in a sample submitted for analysis by EPA Method 1664A is based upon the volume of sample submitted to the laboratory. The "less than detection limit" method of reporting for oil and grease samples from outfall 004 ranges from <4.0 (January, 2015) to <5.38 (September, 2016) to "ND" (November, 2016), while the same reporting for outfall 005 oil and grease samples ranges from < 4.0 to <15.4 (July, 2017). Detectable quantities of oil and grease are reported at outfall 004 beginning in November 2017.

10. The Facility reported a monthly average of cadmium of 0.1115 mg/L at outfall 004 in April, 2017. Mr. Logelin mentioned this analytical result during the Inspection, and stated that the Facility could not explain the cause.

11. The Chain of Custody record for October, 2017 does not have start and end times for 24-hour composite sample 004B.
12. Part C of the Facility's NPDES permit states that numeric effluent limits in the permit are based on a maximum flow rate at outfall 004 of 0.15 million gallons per day (MGD). EPA inspector Eller notes that:

    The monthly average flow reported for outfall 004 in July, 2017 was 0.17 MGD with a maximum daily flow of 0.332 MGD.

    The monthly average flow reported for outfall 004 in August, 2017 was 0.185 MGD with a maximum daily flow of 0.323 MGD.

    The monthly average flow reported for outfall 004 in September, 2017 was 0.17 MGD with a daily maximum flow of 0.542 MGD.

13. The copies of the Chain of Custody records submitted by the Facility during the Inspection are not complete. The records for the Facility's samples in February and March, 2015 and January 2016 are not signed by anyone from Hawk Mountain Labs. The record for October, 2015 is signed as received by "T. Wiest" but not logged in by the laboratory.

14. The record for December, 2015 contains an illegible signature relinquishing custody of the Facility's compliance samples at 09:30 on 17 December, 2015; The signature acknowledging receipt of the samples is dated the same day at 14:20. It is unclear who had custody of the samples for the intervening 4 hours and 50 minutes.

15. The record for July 2017 shows samples were relinquished by Joe Falko at 15:00 on 13 July, 2017, and received by someone (signature illegible) at 10:00 14 July, 2017. EPA inspector Eller notes that Mr. Falko stated during the Inspection that custody of the Facility's compliance samples is normally transferred to a Hawk Mountain Labs representative when he/she is physically present at the Facility on a Friday. 14 July, 2017 was a Friday. However, given Mr. Falko's description of the normal self-monitoring and custody transfer process, it is unclear why the record is signed as "relinquished" at 10:00 on the day prior.

Closing Conference (CWA -NPDES)

On the morning of 17 May, 2018, EPA inspectors Eller and Kline held a closing conference regarding the CWA-NPDES portion of the Inspection with Mr. Falko, Mr. Foster, Mr. Logelin, and Mr. Basilone by phone from AZR's Pittsburgh office. EPA inspectors Eller and Kline then discussed their observations with the Facility representatives. EPA inspector Eller provided Mr. Falko with a Receipt for Samples, and a written list of documents requested by EPA. EPA inspector Eller thanked the Facility representatives for their time, reminded them of the purpose and scope of the Inspection, and affirmed that copies of all photo and videos would be sent to Mr. Basilone for AZR to review and make any CBI claims. EPA inspectors Eller and Kline advised the Facility representatives that EPA inspectors are not authorized to make compliance determinations in the field.

EPCRA 313 Inspection

EPA inspectors Margaret Hernández-Vega and José Jiménez conducted the EPCRA 313 portion of the Inspection. Hernandez-Vega and Jimenez selected three reported 313 Chemicals for data quality review: Lead compounds, Mercury and Zinc compounds. EPA inspectors Hernández-Vega and Jiménez toured the Facility and discussed the Facility’s process to identify EPCRA 313 chemicals. Erica Livingston, AZR Environmental Affairs Manager, is in charge of the emissions calculations, and was not available at the Facility, since her duty station is in Pittsburgh, PA. Therefore, EPA inspectors Hernández-Vega and Jiménez held a conference call with Ms. Livingston instead. Hernández-Vega and Jiménez also held a follow-up video teleconference with Facility representatives on May 18, 2018, to review the Facility’s 2014, 2015 and 2016’s emissions calculations and Hernández-Vega and Jiménez requested documentation and explanations. Explanations and documents were submitted to EPA by AZR on June 25, 2018, via email.

Background

According to regulations at 40 C.F.R. Part 372 promulgated under Section 313 of SARA Title III, a plant, factory, or other facility comes under the provisions of Section 313 if it:

1. Has a primary Standard Industrial Classification ("SIC") code (as in effect on January 1, 1987) between 2000 and 3999, or, starting January 1, 1998, has a SIC code in one or more of the following categories:
   A. Between 1000 and 1099, except 1011, 1081, and 1094;
   B. Between 1200 and 1299, except 1241;
   C. 4911, 4931, or 4939 (limited to facilities that combust coal and/or oil for the purpose of generating power for distribution in commerce);
   D. 4953 (limited to facilities regulated under Resource Conservation and Recovery Act, Subtitle C, 42 U.S.C. □ 6921 et. seq.);
   E. 5169 or 5171;
   F. 7389 (limited to facilities primarily engaged in solvent recovery services on a contract

or fee basis); and

2. In addition, it has 10 or more full-time employees; and
3. Manufactures (including imports) or processes more than 25,000 pounds during calendar year 1989 or later, or otherwise uses more than 10,000 pounds of a listed toxic chemical during any calendar year; or, starting calendar year 2000, manufactured, processed, or otherwise-used the following chemicals in at least the following amounts during the calendar year for which the form is required:

100 pounds -	aldrin, methoxychlor, pendimethalin, polycyclic aromatic compounds, tetrabromobisphenyl A, trifluralin;
10 pounds -	chlordane, heptachlor, mercury, toxaphene, isodrin, polychorinated biphenyls, benzo(g,h,i)perylene, hexachlorobenzene, mercury compounds, octachlorostyrene, pentachlorobenzene;
0.1 grams -	dioxin and dioxin-like compounds;

or, starting calendar year 2001, manufactured, process, or "otherwise-used" the following chemicals in at least the following amounts during the calendar year for which the form is required:

100 pounds -	lead which is not contained in a stainless steel, brass, or bronze alloy;
100 pounds -	lead compounds.

At the time of the Inspection, the Facility had an NAICS code of 331492 for Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum) and a SIC code of 3341. At the time of the Inspection the number of full-time employees was 120. For the years 2014 to 2016, the number of employees reported by the Facility was 120 full-time employees. According to Facility representatives, the Facility exceed the threshold for the following EPCRA 313 chemicals: vanadium(V) compounds, nickel (Ni) compounds, lead (Pb) compounds, manganese (Mn) compounds, zinc (Zn) compounds, mercury (Hg) compounds and cadmium (Cd) compounds for 2014, 2015 and 2016.

EPCRA 313 Observations

During the opening conference on May 14, 2018, EPA inspectors Hernández-Vega and Jiménez requested to talk with the person in charge of the preparing and submitting EPCRA TRI Forms. However, Mr. Falko indicated that the person in charge of the EPCRA TRI Forms submittals was Ms. Livingston. A conference call with Ms. Livingston was scheduled for later that day.

Around 14:00, EPA inspectors Hernández-Vega and Jiménez held a conference call with Ms. Livingston, and with Mr. Falko, who was present in the room. During the call, Ms. Livingston explained the process for the EPCRA 313 chemicals threshold determination and TRI Form Rs and As submittal. According to Ms. Livingston, the EPCRA TRI forms generation and submittal process starts with Ms. Livingston. She sends an information request to Mr. Falko that includes production, air emissions and NPDES water information from the Facility. With the information provided by Mr. Falko, Ms. Livingston inputs the numbers into an Excel spreadsheet created by AZR to generate the information for the EPCRA TRI Forms. This spreadsheet makes the EPCRA TRI calculations, including total usage, to determine if the thresholds were met by the Facility. Afterwards, the spreadsheet with the results is verified by Mr. Falko and the Facility's Plant Manager, Mr. Foster.

During the review of the Form Rs, the EPCRA Inspector Hernández-Vega noticed the metals discharged to the Publicly Owned Treatment Works (POTWs) were the same during the three years selected to be reviewed during the Inspection. Mr. Falko explained that at one point, years ago, the Facility sampled the sanitary water. The EPCRA Inspector Hernández-Vega asked the source of the metals in the sanitary water and Mr. Falko responded that the source may be from the showers used by the employees. The Facility has a policy that every employee needs to shower before leaving the facility.

Chemical Usage

On May 18, 2018, EPA inspectors Hernandez-Vega and Jimenez held a video conference call with Facility representatives Ms. Livingston,. Mr. Baselone, and Mr. Logelin. During the call, the Facility's Toxic chemical usage/manufacturing for calendar year 2014 to 2016 were reviewed for lead, zinc and mercury compounds. According to the information provided by the Facility, the EPCRA 313 chemical usage during 2014 to 2016 are summarized in Table 4.

Data Quality

As indicated in Table 4, the Facility filed Form Rs for lead, zinc and mercury compounds for 2014 through 2016. Information how the threshold and emission values were calculated was previously described within this report. These spreadsheets are reviewed by Ms. Livingston in an annual basis, but no changes to the core formulas for the stack emissions have been done. EPA inspector Hernández-Vega noticed that the TRI Forms of 2014 were submitted on 1/4/16, six months after the deadline.

EPA inspectors Hernández-Vega and Jiménez asked about the Facility's source of mercury emissions. Mr. Falko explained that the source of mercury emissions comes from coke and coal. When the EAF dust is mixed with water and coal in the pelletizer, an exothermic reaction takes place in the kiln yielding mercury emissions.

On May 18, 2018, via video teleconference, EPA inspectors Hernández-Vega and Jiménez reviewed the emissions calculations for lead, zinc and mercury compounds for the years 2014, 2015 and 2016 and observed discrepancies between the reported and calculated emissions for lead and mercury compounds (see Table 5). According to Ms. Livingston, the discrepancy between the reported and calculated fugitive emissions for lead compounds in 2015 was due to a typographical error. However, the discrepancies for the stack emissions and total other offsite disposal or other releases depicted in Table 5 were going to be verified by the Facility. During the spreadsheets review, Facility representatives showed the EPA inspectors Hernandez-Vega and Jimenez the 2016 spreadsheet. On Section 8.4, Quantity Recycled On-site, the quantity of Lead recycled on-site was 104,271 pounds, but the amount reported on the Form R was 87 pounds. According to Ms. Livingston, she was showing the wrong spreadsheet on the video conference screen. She replaced this spreadsheet with a new one with the same filename.

On June 25, 2018, the Facility sent an email to the EPA inspector Jiménez with the documentation and explanations requested during the video teleconference held on 18 May, 2018 (See Attachment 8). EPA inspector Hernández-Vega reviewed the spreadsheets containing the emissions calculations and observed additional discrepancies between the reported and calculated emissions (see Table 6).

Hernández-Vega observed discrepancies between the reported calculations on the spreadsheet shown on 18 May, 2018 and the spreadsheet submitted on 25 June, 2018. These discrepancies are summarized in Table 7. Hernandez-Vega and Jimenez were not able to review the formulas used and embedded in the spreadsheets since these were not defined in the spreadsheets and AZR submitted these documents to EPA in .pdf format. Hernández-Vega sent follow up questions to the Facility on July 10, 2018.

Closing Conference

At the end of the May 18, 2018 tele conference, EPA inspectors Hernández-Vega and Jiménez discussed their observations with the Facility representatives. EPA inspectors Hernández-Vega and Jiménez requested some of the documents and sent an e-mail with questions on the information presented during tele conference. EPA inspectors Hernández-Vega and Jiménez thanked the Facility representatives for their time and cooperation.

CWA-SPCC Inspection

EPA inspectors Jose Jiménez and Margaret Hernández-Vega conducted the EPCRA 313 portion of the Inspection.

General Information

This section addresses compliance with the Spill Prevention, Control and Countermeasure (SPCC) regulations. No permits are required or issued under the federal SPCC regulations. The Clean Water Act (CWA) and the EPA's Oil Pollution Prevention Regulations require the preparation, certification and implementation of a SPCC Plan.

These regulations apply to any facility engaged in drilling, producing, gathering, storing, processing, refining, transferring or consuming oil and oil products, providing that all the following conditions are met: the facility is non-transportation related, the aboveground storage capacity of a single container is in excess of 660 gallons, or the aggregate aboveground storage capacity is greater than 1,320 gallons, or the total underground capacity is greater than 42,000 gallons, and due to the facility location, oil spilled at the facility could reasonably be expected to reach waters of the United States.

The Facility stores oil (as defined by EPA) in various forms, primarily fuel. At the time of the Inspection, the Facility had the above-ground storage capacity of a single container in excess of 660 gallons, and the aggregate above-ground storage capacity of approximately 61,000 gallons. At the time of the Inspection, the Facility had an SPCC plan. Based on information provided by Facility representatives, twenty-one (21) oil-filled transformers and a gen set (reserved fuel tank for an emergency power generator) were located at the Facility. Based on EPA inspector Jiménez's observations, some of the oil-filled transformers contain PCBs, less than 500 ppm.

Documents Reviewed and Related Observations

SPCC Plan

On May 14, 2018, EPA inspectors Margaret Hernández-Vega and José Jiménez reviewed the Facility's Integrated Preparedness, Prevention, and Contingency Plan (the ICP). The ICP incorporates the SPCC requirements. At the time of the Inspection, the ICP was dated

November 2017. The ICP was prepared to comply with other state and Federal environmental requirements. The ICP had the signatures of the Facility manager and a professional engineer. According to the ICP, the Facility stores oil in above ground containers (ASTs), one gasoline underground storage tank, oil-filled equipment (OFE) (transformers and an emergency power generator) and 55-gallon containers. The ICP has a cross-reference section to meet with the SPCC requirements. The Certification of the Applicability of the Substantial Harm Criteria was dated October 30, 2017.

EPA inspector Jiménez made the following observations during the ICP review:

1. The monthly inspections did not include the oil-filled operating equipment (OFE) (e.g., oil-filled transformers, genset), see page 22 of ICP.
2. No specific information concerning the alternative to general secondary containment requirements for OFE was provided in the ICP. Table 2 indicated "Active response" as a leak containment.
3. The ICP lacked information on disposal steps of oil-contaminated media. No evidence of training was provided during the Inspection.
4. Under ICP's Section B.3.1. (Enforcement Notification) on page 15, the plan states "submit the information listed in Section 1.5 to the Regional Administrator within 60 days from the time the Plant becomes subject to 40 CFR 112.4(a);" However, the ICP did not have a Section 1.5.
5. Some of the oil-filled transformers contain PCBs, but less than 500 ppm. The ICP did not identify which oil-filled transformers contain PCBs, nor did the ICP identify their PCB concentration.
6. The ICP lists the oil-filled containers, OFEs and their capacities, but do not list the type of oil stored in the container or OEF.

EPA inspector Jiménez asked the Facility representatives about inspections of the ASTs and oil-filled equipment. ASTs are inspected every month. In February 2018, several tank inspections were missed. The form used by the Facility is a one- page form and does not require a signature. Training is provided to new Facility employees during orientation week by George R. Albert, Manager of Health and Safety. The training takes four to five days. The training provides information regarding DOT regulations on materials containing lead and cadmium. Oil management requirements are incorporated into the Facility's training based an individual employee's responsibilities.

Facility Observations

On May 14, 2018, EPA inspectors Jiménez and Hernández-Vega conducted a walkthrough of the Facility. The EPA inspectors Jiménez and Hernández-Vega observed several oil-filled transformers and ASTs during the tour. Photo 126 shows a Waste Oil AST. During the tour, the EPA inspectors Jiménez and Hernández-Vega observed Tank No. 002A (see Photo 131) and visited Electrical Substations No. 40 and 42.

Electrical Substations No. 40 and 42

Photo 127 shows a view of AST Tank 001A (Fuel Oil) and Electrical Substation No. 40. Three oil-filled transformers were in this substation (see Photos128, 129 and 130). The substation was closed, and Jimenez and Hernandez-Vega were not able to see the nameplates. Transformer No. 5 had a blue sticker indicating Non- PCBs (see Photo 130). At Electrical Substation 42, EPA inspectors Jiménez and Hernández-Vega observed combustible materials (e.g., wood pieces) at the substation. No sign of leak was observed at the time of the Inspection.

On May 15, 2018, the EPA inspectors Jiménez and Hernández-Vega visited the following locations:

Building 629 – Tank No. 011A (Waste Oil Tank)

The Waste Oil Tank, a 1,000-gallon AST, was visited by EPA inspectors Jiménez and Hernández-Vega (see Photo 126). The AST was inside of a metal structure that serves as secondary containment. Based on the ICP, the secondary containment capacity is 1,167 gallons. At the time of the Inspection, around two inches of water were measured inside the secondary containment. The Facility and surrounding area experienced rain days before the Inspection (see Table 1).

Tank No. 002A

Tank No. 002A is a 20,000-gallon fuel oil tank, see Photos 131 and 132. At the time of the Inspection, the diked area was free of vegetation, dry and in good shape. Based on the ICP, the secondary containment capacity is 47,759 gallons and the dike is made of clay. An open pipe (no cap or valve to control flow of fluid on both sides) was observed through the berm, see Photos133 and 134. Another pipe, this one connected to the AST, and passing on top of the diked area, was supported by a piece of wood (see Photo135).

Emergency Power Generator – Kiln No. 1

EPA inspectors Jiménez and Hernández-Vega observed an emergency power generator, (see Photo136), located at Kiln 1. Based on the ICP, the emergency power generator has a diesel fuel tank with capacity for 2,005 gallons. EPA inspectors Jiménez and Hernández-Vega noted a wet area on the back of the unit, see Photo137. The liquid from the wet area and the liquid did not have an oil or fuel type viscosity and had no smell of organic fluid. The wet area appeared to be a fuel stain.

West of Compressor Room

EPA inspectors Jiménez and Hernández-Vega visited an oil-filled transformer located west of the compressor room. Based on the transformer's nameplate, the item contains 282 gallons of non-PCBs oil. No leaks were observed at the time of the Inspection.

Tank No. 001A

EPA inspectors Jiménez and Hernández-Vega observed Tank No. 001A, a 20,000-gallon diesel fuel AST, see Photo138. This AST had the same configuration as Tank No. 002A. A pipe coming across the diked area, similar to the pipe observed at Tank No. 002A, was observed by EPA inspector Jiménez at Tank 001A, but this pipe had a valve on the end leading to outside of the diked area. No concerns were observed by EPA inspectors Jiménez and Hernández-Vega.

Electrical Substations No. 29

Transformer C858362 contains 500 gallons of 10C oil. No leaks were observed at the time of the Inspection.

Electrical Substations No. 36

Transformer G855597 contains 215 gallons of oil with no PCBs (see Photos139 and 140.). No leaks were observed at the time of the Inspection.

Electrical Substations No. 37

Transformer PBV-7518-01 contains 211 gallons of oil with a label on the unit indicating PCB Contaminated. No leaks were observed at the time of the Inspection.

On May 16, 2018, EPA inspectors Jiménez and Hernández-Vega visited the following locations:

Electrical Substation No. 27

EPA inspectors Jiménez and Hernández-Vega observed three oil-filled transformers (see Photo 141). Based on the nameplates, these transformers were built early 1900's. The serial numbers associated to these transformers were: 391166, 391162 and 391161. The transformers were not in use, and were not leaking. Based on the ICP, the oil volume is less than 55 gallons.

Storage Area

Three oil-filled transformers were stored at this location (see Photo 142). The transformers were situated in an area where a leak from the transformers could be contained (see Photo 143). Based on the nameplate, these transformers do not contain PCBs. The transformers were not leaking at the time of the Inspection.

Closing Conference

On the afternoon of 16 May, 2018, EPA inspectors Hernández-Vega and Jiménez held a closing conference regarding the SPCC portion of the Inspection with Facility representatives. EPA inspectors Hernández-Vega and Jiménez discussed their observations with Mr. Falko. Another briefing was given to Mr. Basilone, during the May 18, 2018 tele conference. EPA inspectors Hernández-Vega and Jiménez discussed their observations, and used photos, during the tele conference, to illustrate their observations.

DSCN0294.MP4

Photo 1 (Video). (DSCN0294) This video looks west towards building 608 / 624 and shows clouds of brown dust mobilized from impervious surfaces at the Facility by the winds of an approaching thunderstorm at approximately 16:01 on 15 May, 2018. Note that black granular material (IRM) present on the ground at left, is also moved by the wind gusts.

Photo 2. (DSCN0080) This photo shows the interior of catch basin # 1, located southeast of the Building 608 truck entrance, offset from storm sewer Lateral 5. Note there is brown, fine-grained material visible in the bottom of the catch basin. See also Photo 11.

Photo 3. (DCSN0111) This photo, taken near the Building 608 truck entrance, looks east along the southern access road that runs along the southern boundary of the Facility. In this photo, a Facility employee with a forklift has removed the metal grate that covers the inlet to catch basin # 1 to allow sampling of the material in the bottom. Note, the eastern side of the storm water puddle in front of the Building 608 truck entrance is visible in the foreground.

Photo 4. (DSCN0089) This photo, shows a portion of the interior of catch basin #2, located southeast of the Building 608 truck entrance, offset from storm sewer lateral 5. Note the deposits of fine-grained, brown material in the bottom of the catch basin.

Photo 5. (DSCN0090) This photo shows a portion of the interior of catch basin # 3, located W-SW of the Building 608 truck entrance, offset from storm sewer lateral 5. Note the deposits of fine-grained brown material in the bottom of the catch basin.

Photo 6. (DSCN0091) This photo just west of catch basin # 3, looks eastward along the southern access road that runs along the southern boundary of the Facility. At left, Building 608 and a truck delivering EAF dust is visible awaiting entrance. The metal inlet grate in the foreground is catch basin # 3. The puddle of storm water in front of the Building 608 truck entrance is visible in the middle ground of this photo.

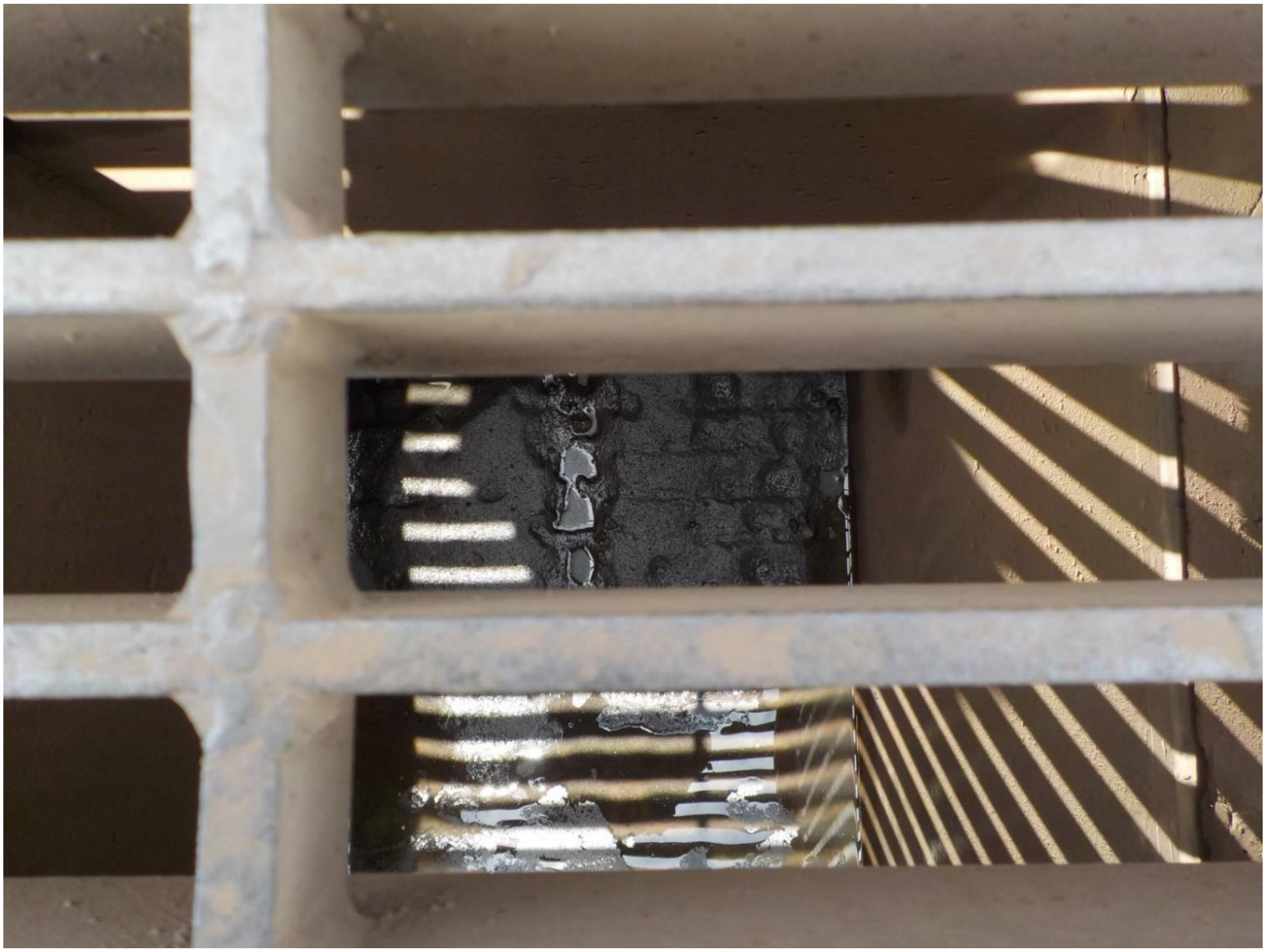

Photo 7. (DSCN0093) This photo shows a portion of the interior of catch basin #4, located SW of the Building 608 truck entrance, offset from storm sewer lateral 5. Note the deposits of fine-grained, brown material in the bottom of the catch basin.

Photo 8. (DSCN0095) This photo, taken from a point along the southern perimeter of the Facility, looks northward towards the truck entrance on the south side of Building 608. A large puddle of storm water is visible on the paved road approximately 3-5 meters from the roll door. See also Photo 9 for a close-up view of water color, clarity, and suspended sediment.

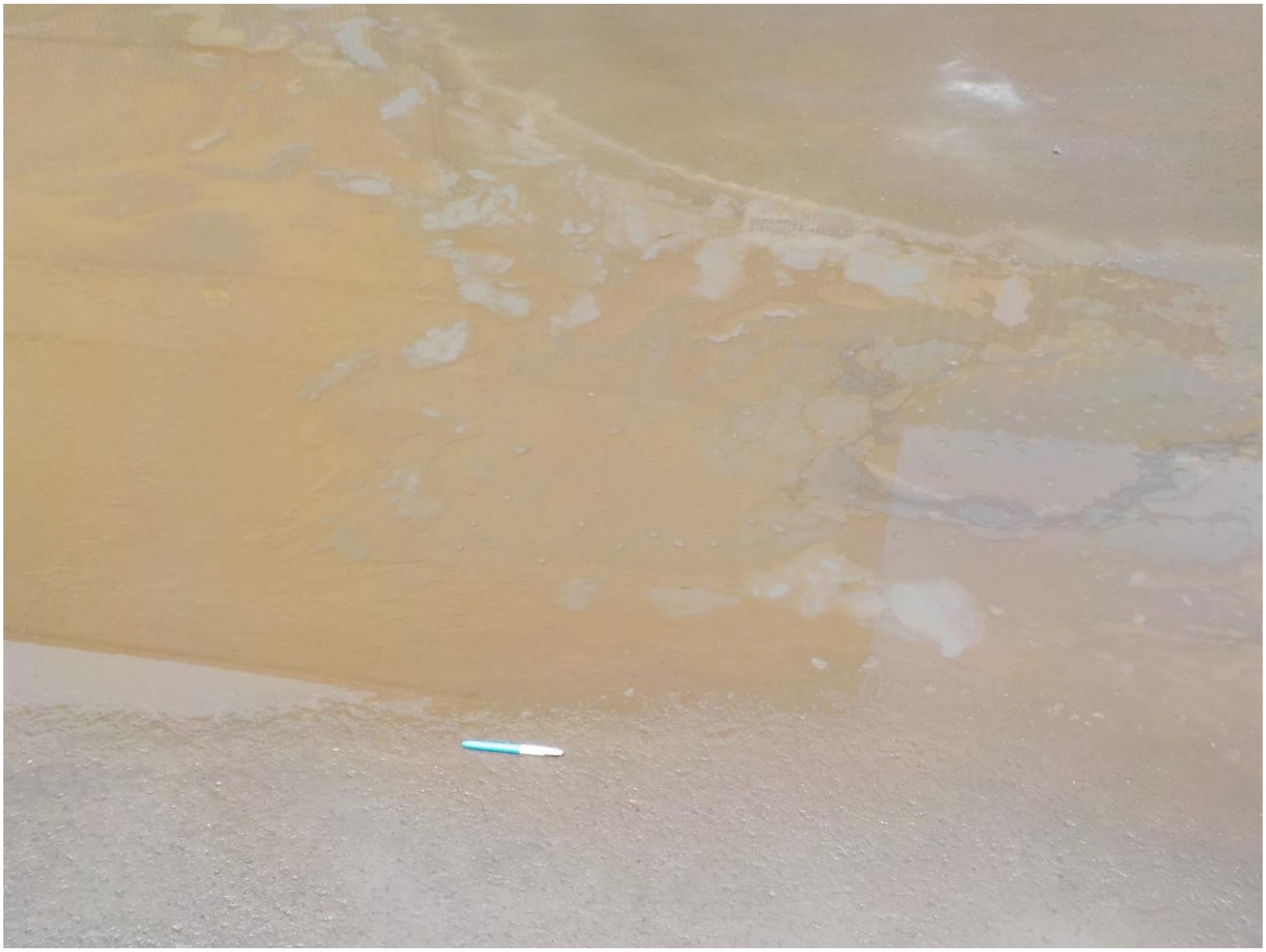

Photo 9. (DSCN0097) This photo shows a close-up view of the storm water puddle in front of the Building 608 truck entrance. See also Photo 7. Note, the water in the puddle is laden with fine-grained suspended material that discolors the water brown, and gives it a cloudy appearance. The pen placed for scale in the foreground is 5.5 inches long.

Photo 10. (DSCN0092) This photo shows a tractor-trailer truck backing through the Building 608 truck entrance to make a delivery of EAF dust.

Photo 11. (DSCN0098) This photo taken from catch basin 1, looks westward towards the Building 608 truck entrance. A yellow payloader is visible backing out of the truck entrance. Note, there is wet, brown material on the payloader’s tires, and streaks of wet, brown material on the pavement, extending from the door to the storm water puddle in the foreground.

Photo 12. (DSCN0105) This photo shows the interior of catch basin 1, located approximately 10-12 meters (30-40 feet) E-SE of the Building 608 truck entrance, after the metal inlet grating was removed. Note the deposits of brown, fine-grained material with larger clasts or agglomerations entrained, and brown, cloudy water.

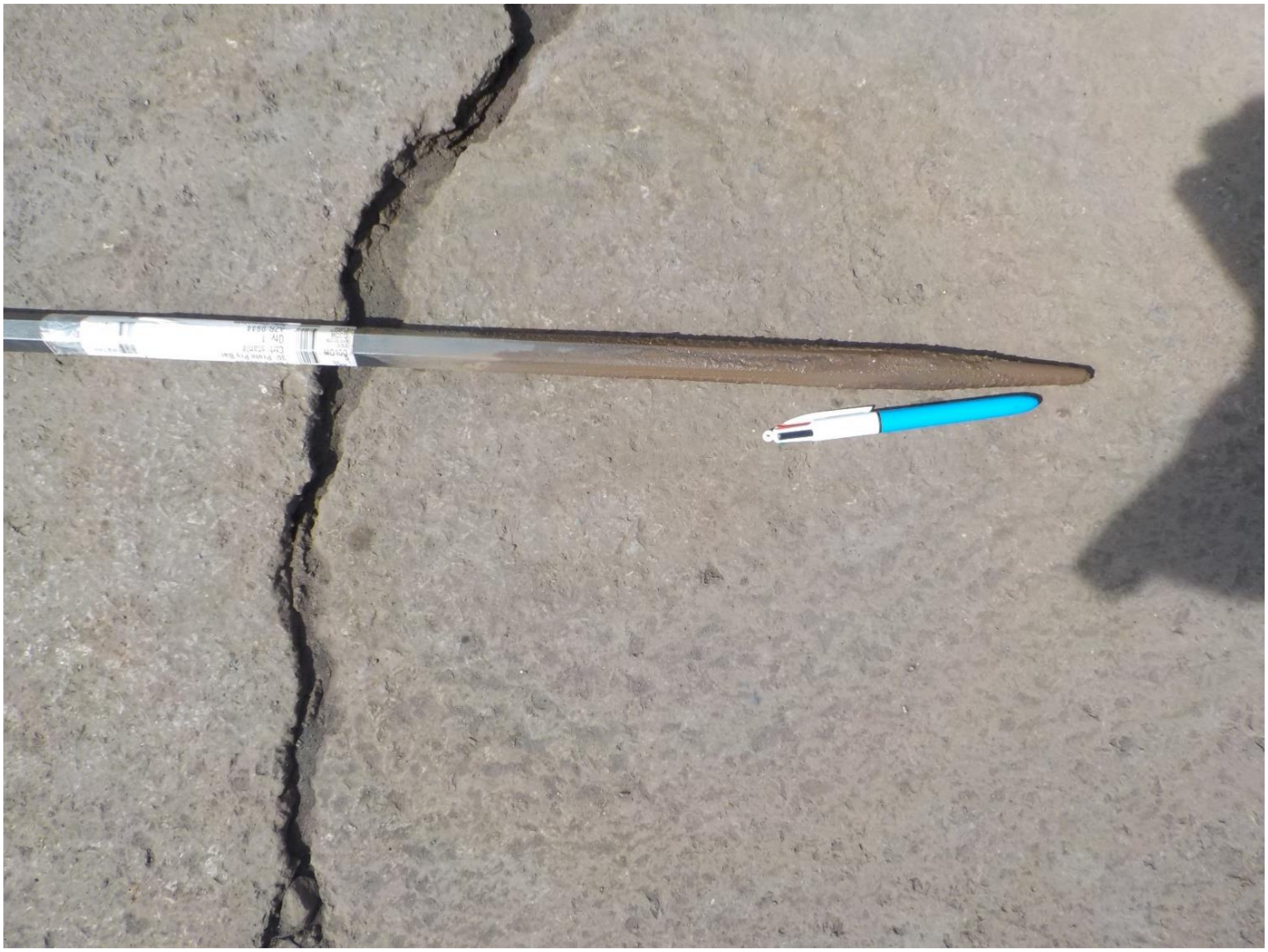

Photo 13. (DSCN0108) This photo shows a metal pry bar used to sound the depth of the brown, fine-grained material deposited in the bottom of catch basin 1. Note the depth of the material was approximated by the brown, fine-grained material that adhered to the pry bar when it was removed from the deposit. The pen placed for scale is 5.5 inches long.

Photo 14. (DSCN0086) This photo looks westward along a concrete drainage swale parallel to the Facility's southern access road. Visible at right, in the distance, are uncovered piles of coke. Note the deposits of coke fines in the drainage swale.

Photo 15. (DSCN0117) This photo, taken outside the Building 624 truck wash exit doors, shows the rear tires of a truck exiting the truck wash bay after making a delivery of EAF dust in Building 608. Note the tires are coated with a thin layer of wet, brown dust. Note also the brown track-out marks on the pavement.

Photo 16. (DSCN0123) This photo shows part of the interior of Building 608, the RCRA-permitted storage building for EAF dust. Visible at right is a payloader the Facility utilizes to manage EAF dust. The truck entrance roll-up door is open.

Photo 17. (DSCN0125) This photo shows part of the interior of Building 608, the RCRA-permitted storage building for EAF dust. Visible at right is a payloader the Facility utilizes to manage EAF dust. The truck entrance roll-up door is closed. Note that daylight is visible through a gap at the bottom of the door.

Photo 18. (DSCN0127) This photo shows part of the interior of Building 608, the RCRA-permitted storage building. Here, a payloader pushes a load of EAF dust onto the main EAF dust pile, visible in the background. A stream of water from a water cannon is visible arcing through this photo to wet down the EAF dust. Note the puddle of water is accumulating at right. See also Photo 19, 20, and 21.

Photo 19. (DSCN0128) This photo shows another portion of the interior of Building 608, the RCRA-permitted storage building. The EAF dust main pile is visible at left in the background. At right, the stairs to the control booth and the water cannon are visible. The water cannon is emitting a stream of water to wet down EAF dust. See also Photo 18, 20, and 21.

Photo 20. (DSCN0134) This photo shows a payloader pushing EAF dust onto the main EAF dust pile inside Building 608. The nozzle of the water cannon is visible at left, emitting a stream of water to wet down the dust. See also Photos 18, 19, and 21.

Photo 21. (DSCN0131) This photo shows a portion of the interior of Building 608, the RCRA-permitted storage building for EAF dust. This photo looks towards the southern wall of the building. In the center is a payloader utilized by the Facility to manage EAF dust. See also photos 18, 19, and 20.

Photo 22 (DSCN0142) This photo shows a truck backing into Building 608, the RCRA-permitted storage building for EAF dust. See also Photo 23.

Photo 23. (DSCN0149) This photo shows the truck visible in Photo 22 dumping a load of EAF dust (brown cloud) inside Building 608, the RCRA-permitted storage building for EAF dust. The water cannon is visible at right in the foreground.

Photo 24. (DSCN0176) This photo was taken just outside the Building 608 truck entrance, and shows the low concrete berm in the threshold of the doorway. Note the brown fine-grained material on the pavement surface on the interior side and exterior side of the berm, and on top of the berm. See also Photo 25.

Photo 25. (DSCN0178) This photo, taken just outside the Building 608 truck entrance, shows the brown, fine-grained material on both sides of the berm in the doorway threshold. See also Photo 24.

Photo 26. (DSCN0157) This photo, taken inside a truck wash bay (Building 624), shows a Facility employee using a pressure washer to spray the rear tires of a truck that just delivered a load of EAF dust in Building 608.

Photo 27. (DSCN0160) This photo, taken inside one of the truck wash bays in Building 624, looks eastward towards the roll-up exit door. Note there is daylight visible through a gap in the southern part of the roll-up door.

Photo 28. (DSCN0164) This photo shows the T-shaped floor drain in a truck wash bay in Building 624.
See also Photo 29.

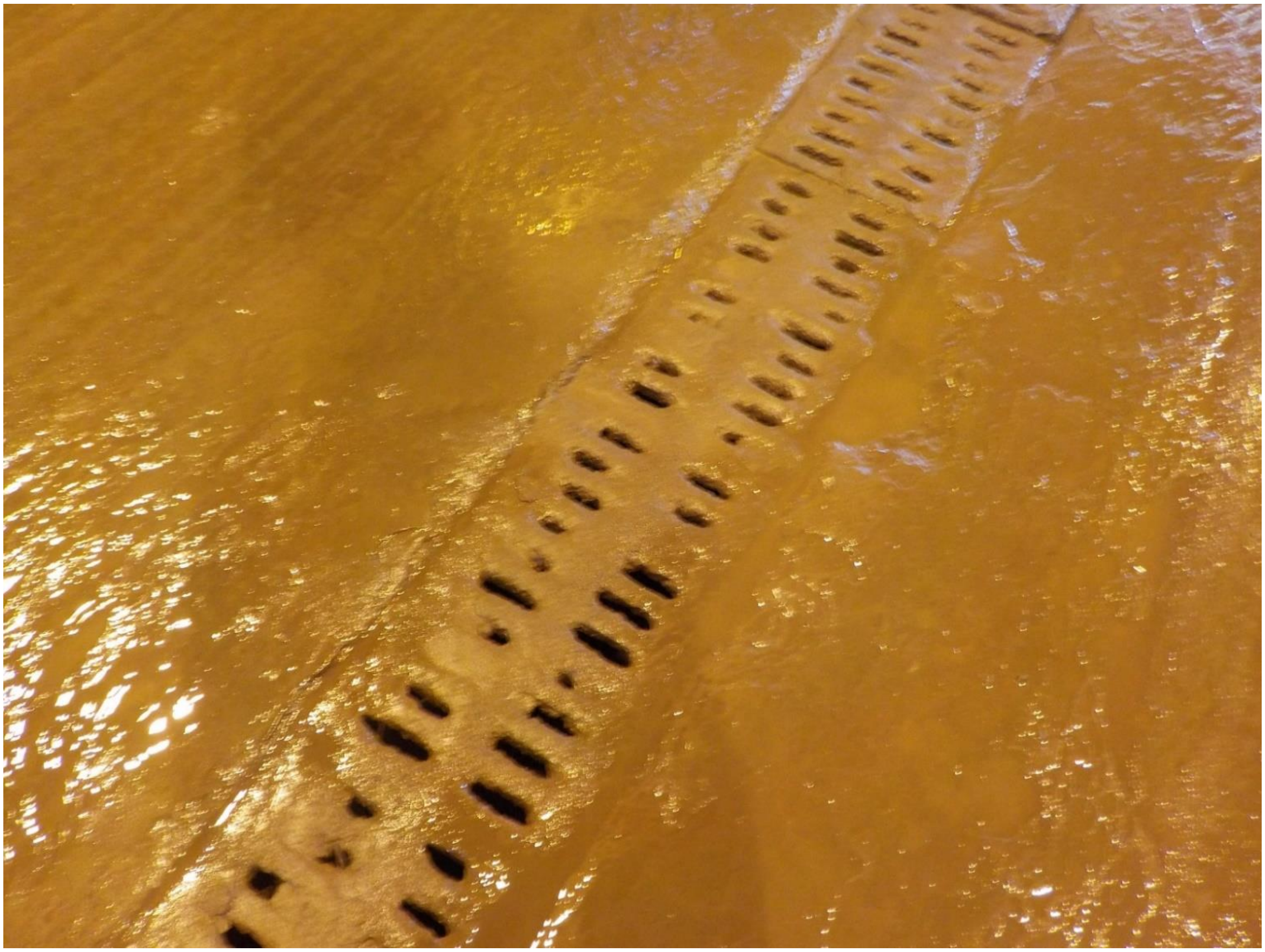

Photo 29. (DSCN0166) This photo shows a close-up view of a portion of the floor drain inside a truck wash bay in Building 624.. See also Photo 28.

Photo 30. (DSCN0179) This photo shows the top of the concrete pit that contains the round, open-top holding tank for dirty wash water from the truck wash bays (Building 624). Appurtenances visible above the metal grates covering the pit include an agitator, the inflow pipe, and a pump that moves the dirty wash water to the water cannon in Building 608. See also Photo 31.

Photo 31. (DSCN0180) This photo is a close-up of a portion of the interior of the concrete pit in the room adjacent to the Building 624 truck wash bays. Just visible through the metal grating is a portion of the round, open top holding tank for dirty wash water. Note, the tank appears to be almost full of brown water. See also Photo 30.

Photo 32. (DSCN0171) This photo, taken outside the truck wash bay exit doors, shows a Facility street sweeper operating on paved areas.

Photo 33. (DSCN0254) This photo looks eastward towards the Lime bunker where kiln rubble is accumulated. Catch basin 9, the western terminus to storm sewer lateral 4, is in the foreground. See also Photos 34 and 35.

Photo 34. (DSCN0255) This photo shows a close-up view of the inlet to catch basin 9, located in the paved area between Building 624 (truck wash bays) / 608 (EAF dust storage) and the Lime bunker. See also Photo 33. Note, the catch basin contains brown water and the outflow pipe is partially submerged.

Photo 35. (DSCN0359) This photo, taken during rainy weather on 16 May, 2018, shows the puddle of storm water in the paved area between Building 624 / Building 608 and the Lime bunker. See also Photo 33. Note, the inlet to catch basin 9 is not visible in this photo.

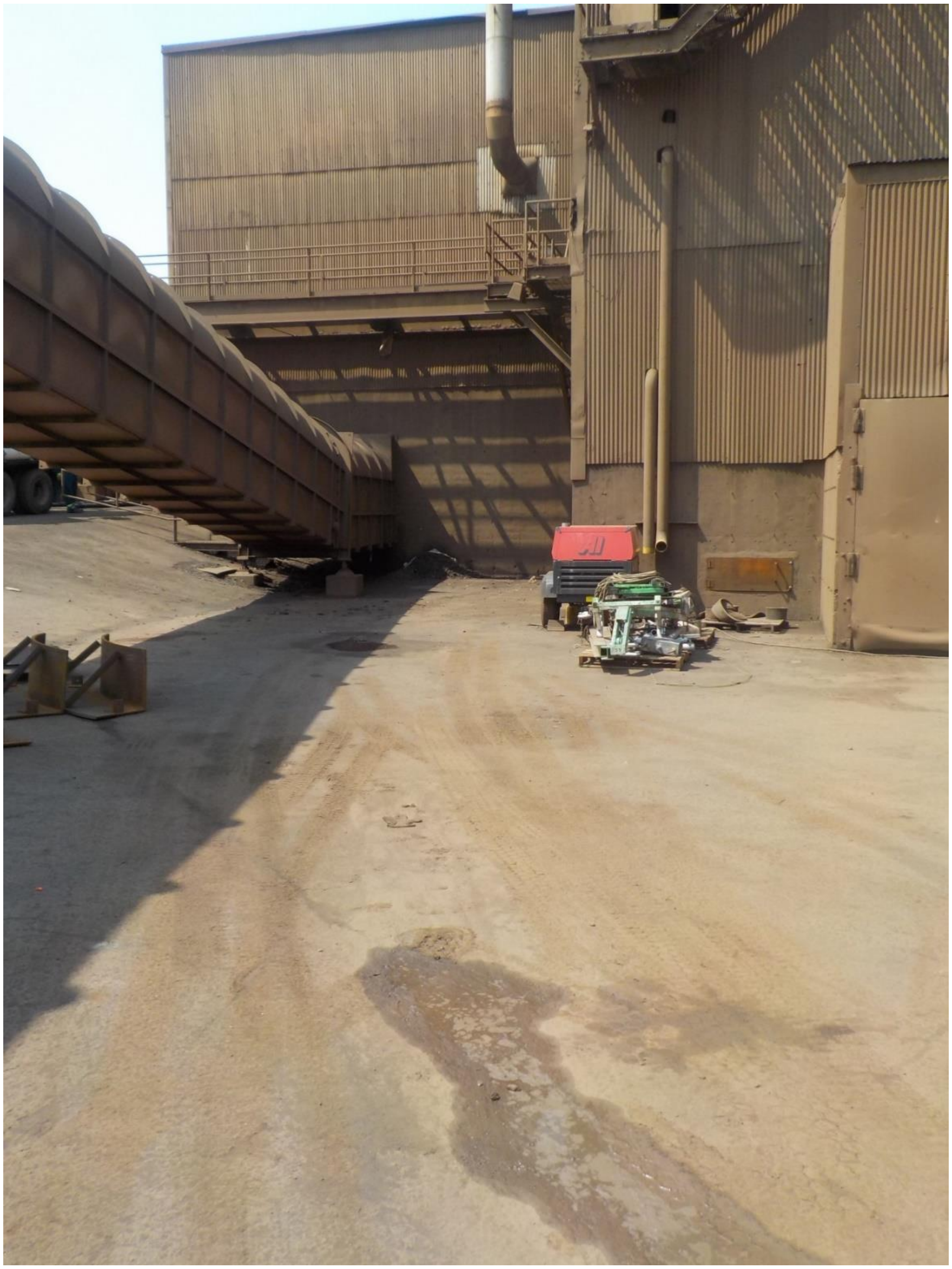

Photo 36. (DSCN0207) This photo looks westward towards the pelletizer building and the base of one of the “gallery belts” that take pelletized EAF dust and coke to the kiln feeds. Note the puddle of brown, cloudy water and fine-grained brown sedimentary material present on the pavement. See also Photos 37, 38, 39, and 40.

Photo 37. (DSCN0208) This photo shows a closer view of the puddle of brown, cloudy water with suspended sedimentary material seen in Photo 36. See also Photos 38, 39, and 40 for a pan to the right following the path of the water.

Photo 38. (DSCN0209) This photo is the first in a series of photos panning right to follow the path of the brown, cloudy water shown in Photos 36 and 37. See also Photos 39 and 40 to continue panning right.

Photo 39. (DSCN0210) This photo is the second in a series of photos panning right to follow the path of the brown, cloudy water puddle shown in Photos 36 and 37. See also Photo 40 to continue panning right.

Photo 40. (DSCN0211) This photo is the third in a series of photos panning right to follow the path of the brown, cloudy water puddle shown in Photos 36 and 37. Note the brown cloudy water and water marks on the pavement lead to a storm water inlet, designated catch basin 15. See also Photo 41 for a closeup view of the inlet to catch basin 15.

Photo 41. (DSCN0212) This photo, taken in the paved area between Buildings 608/624 and the Lime bunker, looks northward and shows a close-up view of catch basin 15. Note the deposits of wet, brown, fine-grained material around the edges of the inlet. See also Photo 42 for an interior view of the catch basin.

Photo 42. (DSCN0213) This photo shows a portion of the interior of catch basin 15, located in the paved area between buildings 608/624 and the Lime bunker, where the “gallery belts” pass overhead. Note the deposits of wet, brown, fine-grained material at the edge of the inlet grate, and the presence of brown water in the catch basin. See also Photo 41.

Photo 43. (DSCN00215) This photo shows an example of pelletized EAF dust and coke fines, the main feedstock for the Facility's waelzing kilns. A pen is shown for scale.

Photo 44. (DSCN0216) This photo shows the upper portion of Kiln 2 which was engaged in waelzing during the inspection. Note the cuff-like bearing on the rotary kiln at center left. At far left is the "dust catcher" where volatilized metals oxidize, cool, and solidify before being drawn into the Facility's "product collectors" (baghouses). At lower left, the yellow corrugated metal shack contains the Facility's "Pump pit" where, according to Mr. Falko, non-contact cooling water and some storm water is collected by gravity drainage and can be pumped to the Facility's settling tanks for treatment before discharge to outfall 004. Catch basin "6" is visible in the foreground just in front of the Pump pit structure.

Photo 45. (DSCN0362) This photo, taken during rainy weather on 16 May, 2018, shows brown track-out marks originating from the exit doors of the truck wash bays (east side of Building 624). See also Photo 46.

Photo 46. (DSCN0363) This photo, taken from just east of the truck wash bay exit doors, looks northward following the flow of storm water towards catch basins 15 and 18. Note also that the storm water from the large puddle in the vicinity of catch basin 9 shown in Photo 35, joins the flow of water visible here from the east (left side). See also Photo 47.

Photo 47. (DSCN0361) This photo, taken in the paved area between buildings 608/624 and the Lime bunker during rain on 16 May, 2018, looks northward towards catch basin 18. Note the flow of brown storm water into the inlet from the paved areas in between buildings 608/624 and the Lime Bunker. See also Photos 35, 45, and 46.

Photo 48. (DSCN0274; NIKON COOLPIX P4) This photo shows the location of catch basin 16, just outside the “number 9 fan room.” See also Photo 49.

Photo 49. (DSCN0276; NIKON COOLPIX P4) This photo shows a close-up view of the inlet to catch basin 16, located just outside the "number 9 fan room." Note the absorbent sock held in place by two rocks and the flooding of the inlet. See also Photo 48.

Photo 50. (DSCN0218) This photo, taken during dry weather on 15 May, 2018, shows the location of catch basin 5, immediately adjacent to the concrete support structures for the lower end of Kiln 2. Visible at far right is a part of the conveyor system that moves IRM out of the quench tank. Note the metal plates and absorbent socks on this inlet to the storm sewer system. According to Mr. Falko, this inlet was "closed" due to problems with IRM-contaminated water entering the storm sewer system and requiring increased pH adjustment before discharge to outfall 004. See also Photo 51.

Photo 51. (DSCN0217) This photo, taken during dry weather on 15 May, 2018, shows another view of catch basin 5, immediately adjacent to the concrete support structures for the lower end of Kiln 2 (in the background). Note, the metal plates and absorbent socks on this inlet to the storm sewer system. According to Mr. Falko, this inlet was "closed" due to problems with IRM-contaminated water entering the system and requiring increased pH adjustment before discharge to outfall 004. See also Photo 52 for a comparison to wet weather conditions.

Photo 52. (DSCN0355) This photo, taken during rain on 16 May, 2018, shows catch basin 5, immediately adjacent to the concrete support structure at the lower end of Kiln 2. Note, the pool of brown, co-mingled storm water and quench water runoff that has accumulated below the concrete arches. See also Photo 51 for a comparison with dry weather conditions. See also Photo 53.

Photo 53. (DSCN0354) This photo, taken during rain on 16 May, 2018, shows another view of catch basin 5, immediately adjacent to the concrete support structure at the lower end of Kiln 2. Note, the pool of brown, co-mingled storm water and quench water runoff that has accumulated below the concrete arches.

Photo 54. (DSCN0221) This photo shows the quench tank for Kiln 2. Note the steam rising from the tank as hot IRM drops out the bottom of the kiln to be quenched in a bath of “industrial” water. A part of the “ski-lift” style conveyor belt that removes quenched IRM from the tank is visible at top in this photo. In the foreground, an earthen sump with a submersible pump sticking out is visible, connecting to a shallow swale. Both the swale and sump contain IRM quench water.

Photo 55. (DSCN0245) This photo shows a close-up view of the earthen sump near the Kiln 2 quench tank. Note, the dark yellow water in the sump is IRM quench water that has condensed, splashed onto the ground, or seeped out of the piles of IRM in the IRM bunker. Note, Mr. Falko stated the equipment and flexible hose visible in this photo are a submersible pump to remove quench water from the sump and return it to the quench tank. The pen placed in this photo for scale is 5.5 inches long. See also Photo 56 through 58.

Photo 56. (DSCN0224) This photo shows a pile of black, granular IRM in a concrete bunker that stores IRM from Kiln 2. A “ski-lift” style conveyor belt moves quenched IRM upwards and out the Kiln 2 quench tank and drops it onto the pile shown here. Note, the pools of dark yellow water in the foreground are IRM quench water that has seeped out of the pile. See also Photo 57 for another view to the right from the same vantage point (following path of the yellow water).

Photo 57. (DSCN0240) This photo, taken from the same location as Photo 56, looks right (northward) from the open end of the IRM bunker for Kiln 2. Note, the dark yellow IRM quench water on the ground pools and drains northward via shallow swale, to the earthen sump shown in Photo 55. The submersible pump and flexible hose that, according to Mr. Falko, returns the quench water to the quench tank, is visible in the background.

Photo 58. (DSCN0244) This photo shows a closer view of part of the shallow swale that conveys IRM quench water (dark yellow) from the pools in front of the IRM bunker at Kiln 2, to the earthen sump near the Kiln 2 quench tank. See also Photos 55 through 57.

Photo 59. (DSCN0345) This photo, taken during rain on 16 May, 2018, shows the pools of dark yellow IRM quench water in front of the IRM bunker at Kiln 2. See also Photo 56 for comparison to dry weather conditions, and Photo 60.

Photo 60. (DSCN0341) This photo, taken during rain on 16 May, 2018, shows dark yellow IRM quench water in the shallow swale and sump near the Kiln 2 quench bath. See also Photo 54 or Photo 55 for comparison to dry weather conditions. See also Photo 59.

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PLEASE SEE CBI COORDINATOR

Photo 61. (DSCN0366) This photo shows the field pH measurement of a grab sample of the dark yellow IRM quench water from the sump near the Kiln 2 quench tank. See also Photo 62 for a close-up view of the instrument.

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Photo 62. (DSCN0365) This photo shows a close-up view of the YSI 556 pH meter screen during a field pH measurement of dark yellow quench water sampled from the sump near the Kiln 2 quench tank.

Photo 63. (DSCN0230) This photo shows the Kiln 1 quench tank with red-hot calcine dropping into a bath of industrial water to be quenched by direct contact with the water.

Photo 64. (DSCN0248) This photo shows the concrete quench water containment tank on the west side of the Kiln 1 quench tank. See also Photo 65 for an interior view.

Photo 65. (DSCN0250) This photo shows a close-up view of the interior of the calcine quench water containment tank on the side of the Kiln 1 quench tank. See also Photo 64.

Photo 66. (DSCN0346) This photo is the first in a series of photos that show reddish-yellow water draining northward from the area just west of Kiln 1. Note, steam emitted from the from Kiln 1 quench tank is visible at right. See also Photos 67 through 72 which trace the drainage pathway of this reddish-yellow water northward between Kilns 1 and 2.

Photo 67. (DSCN0347) This photo is the second in the series of photos (Photos 66-72 inclusive) tracing the northward drainage of reddish-yellow water observed on the ground between Kilns 1 and 2. See also Photos 68-72 inclusive.

Photo 68. (DSCN0348) This photo is the third in the series of photos (Photos 66-72 inclusive) tracing the northward drainage of reddish-yellow water observed on the ground between Kilns 1 and 2. See also Photos 69-72 inclusive that continue the trace northward.

Photo 69. (DSCN0349) This photo is the fourth in the series of photos (Photos 66-72 inclusive) tracing the northward drainage of reddish-yellow water observed on the ground between Kilns 1 and 2. Note a pile of calcine at right, with red-hot calcine dropping onto the pile. See also Photos 70-72 inclusive that continue the trace northward.

Photo 70. (DSCN0351) This photo is the fifth in the series of photos (Photos 66-72 inclusive) tracing the northward drainage of reddish-yellow water observed on the ground between Kilns 1 and 2. See also Photos 71 and 72 that continue the trace northward.

Photo 71. (DSCN0352) This photo is the sixth in the series of photos (Photos 66-72 inclusive) tracing the northward drainage of reddish-yellow water observed on the ground between Kilns 1 and 2. See also Photo 72 that continues the trace northward.

Photo 72. (DSCN0353) This photo is the seventh and last in a series of photos (Photos 66-72) that traces the northward drainage pathway of the reddish-yellow water observed on the ground between Kilns 1 and 2. The pool of yellowish-brown co-mingled storm water and quench water visible in this photo was below the concrete support structure at the lower end of Kiln 2. See also Photos 52 and 53, which show the same pool of water from the western side of the concrete support structure, with respect to the pool's proximity to catch basin 5.

Photo 73. (DSCN0286) This photo shows the entrance to the “Pump pit” building. See also Photo 44 for a view of the “Pump pit” building with respect to Kiln 2.

Photo 74. (DSCN0290) This photo shows a portion of the interior of the tank inside the "Pump pit." The tank visible in this photo has two visible chambers, with a baffle dividing them. See also Photo 75.

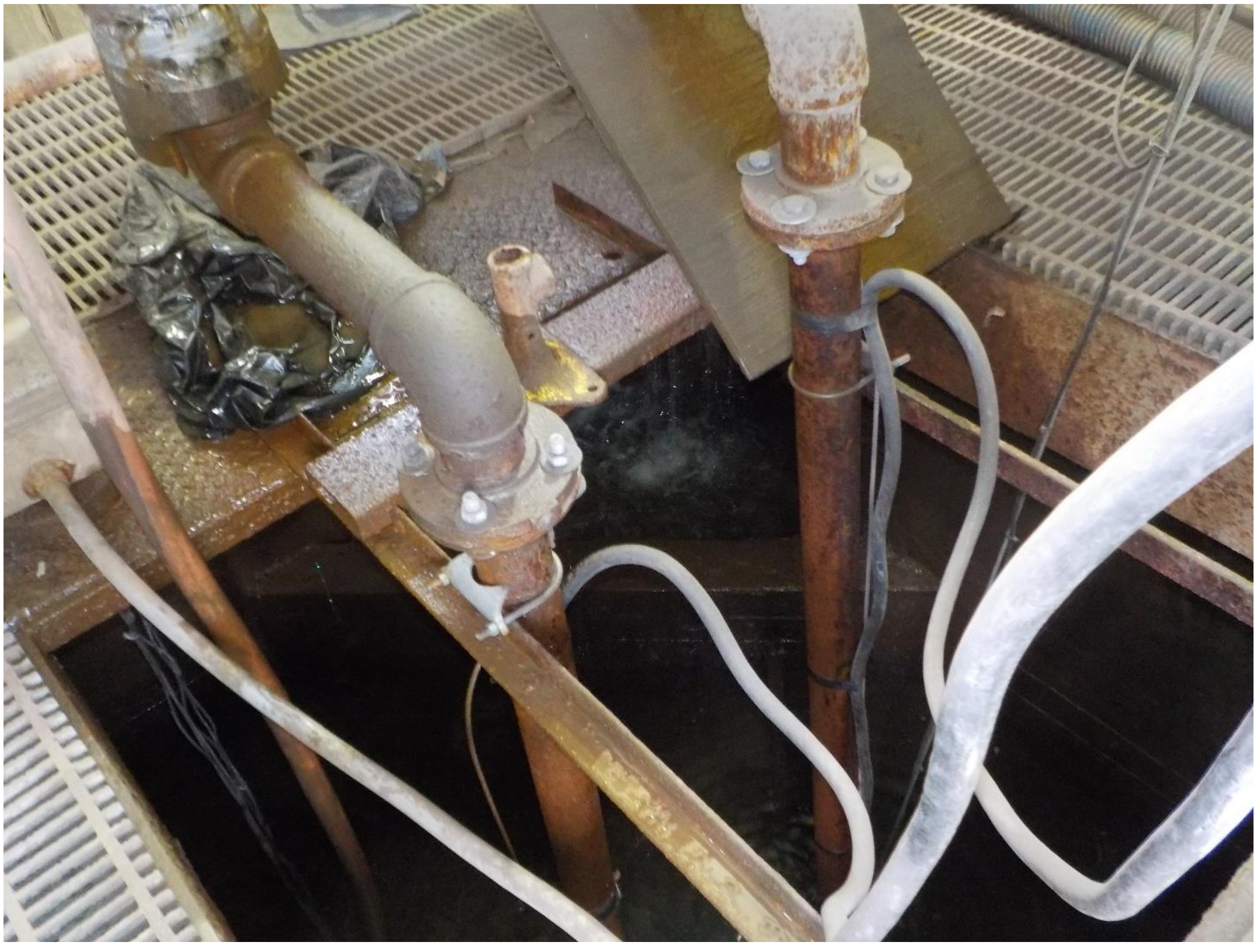


Photo 75. (DSCN0291) This photo shows another view of the tank in the “Pump pit.” Note the baffle that separates the two sides of the tank is visible in this photo. In the background, water is visible discharging into the chamber on the far side of the baffle. See also Photo 74.

Photo 76. (DSCN0292) This photo shows the Facility’s two settling tanks, located approximately 50 meters southwest of the “Pump pit” building. Note, only the northern basin (in the background) was in operation during the inspection.

Photo 77. (DSCN0312) This photo shows the tank of 93% sulfuric acid solution utilized by the Facility for pH adjustment of wastewater for effluent going to outfall 004. Note that secondary containment and spill kits are present.

Photo 78. (DSCN0314) This photo the chemical feed pump nozzles that add sulfuric acid to the effluent from the settling tanks if pH (monitored continuously) is out of the compliance with the upper pH limit in the Facility’s NPDES permit.

Photo 79. (DSCN0252) This photo looks eastward at the Lime bunker. Note, a pile of kiln rubble (damaged kiln brick), a D006/D008 hazardous waste, is present inside the bunker. See also Photos 33, 35, and 80.

Photo 80. (DSCN0253) This photo shows a closer view of the pile of kiln rubble / brick, a D006/D008 hazardous waste, accumulated inside the Lime bunker. See also Photos 33, 35, and 79.

Photo 81. (DSCN0256) This photo, taken from a position between the north end of Kiln 2 and former Kiln 3, looks southward from the railroad bed immediately north of the kilns, along a concrete drainage swale.

Photo 82. (DSCN0269) This photo, taken during dry weather on 15 May, 2018, from a position between Kiln 1 and Kiln 2, looks northward along a concrete drainage swale towards the railroad bed immediately north of the kilns. This is the first is a series of photos (Photos 82-85 inclusive) that traces this swale north to the railroad bed. Note the swale is partially filled with of light brown to black sedimentary material. See Photo 86 for a comparison to wet weather conditions at the same location.

Photo 83. (DSCN0270) This photo, taken during dry weather on 15 May, 2018, is the second in a series of photos (Photos 82-85 inclusive) that traces a concrete drainage swale northward between Kilns 1 and 2. Note the presence of sedimentary material in the swale. See Photo 87 for a comparison to wet weather conditions at the same location.

Photo 84. (DSCN0272) This photo, taken during dry weather on 15 May, 2018, is the third in a series of photos (Photos 82-85 inclusive) that traces a concrete drainage swale northward between Kilns 1 and 2. Note the presence of sedimentary material in the swale. See Photo 88 for a comparison to wet weather conditions at the same location.

Photo 85. (DSCN0275) This photo, taken during dry weather on 15 May, 2018, is the fourth and final in a series of photos (Photos 82-85 inclusive) that traces a concrete drainage swale northward between Kilns 1 and 2. Here, the camera pans left to view westward down the railroad tracks. Note the presence of fine-grained sedimentary material clogging the gravel of the railroad bed. Note also the black, granular or sandy material present on the north side of the railroad bed. See Photo 89 for a comparison to wet weather conditions at the same location.

Photo 86. (DSCN0333) This photo, taken during rainy weather on 16 May, 2018, is the first in a series of photos (Photos 86-89 inclusive) that traces the concrete drainage swale northward between Kilns 1 and 2. Note the storm water, discolored brown, flowing northward to the railroad bed. See Photo 82 for a comparison to dry weather conditions at the same location.

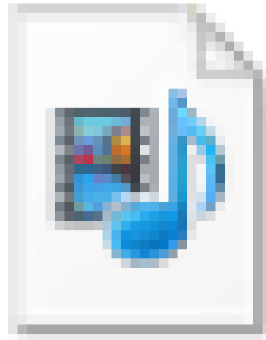
Photo 87. (DSCN0334) This photo, taken during rainy weather on 16 May, 2018, is the second in a series of photos (Photos 86-89 inclusive) that traces the concrete drainage swale northward between Kilns 1 and 2. Note the storm water, discolored brown, flowing northward to the railroad bed. See Photo 83 for a comparison to dry weather conditions at the same location.

Photo 88. (DSCN0336) This photo, taken during rainy weather on 16 May, 2018, is the third in a series of photos (Photos 86-89 inclusive) that traces a concrete drainage swale northward between Kilns 1 and 2. Note the presence of storm water discolored brown, and sedimentary material in the swale. See also Photo 84 for a comparison to dry weather conditions at the same location.

Photo 89. (DSCN0338) This photo, taken during rainy weather on 16 May, 2018, is the fourth and final in a series of photos (Photos 86-89 inclusive) that traces a concrete drainage swale northward between Kilns 1 and 2. Here, the camera pans left to view westward down the railroad tracks. Note the presence of sedimentary material on the railroad bed, clogging the gravel of the railroad bed, and pools of brown, sediment-laden storm water. Note also the black, granular or sandy material present on the north side of the railroad bed. See also Photos 85 for a comparison to dry weather conditions at the same location.

Photo 90. (DSCN0258) This photo shows a pile of kiln brick waste near Kiln 5. See also Photo 91.

Photo 91. (DSCN0257) This photo shows a close-up of kiln brick waste on the ground near Kiln 5. See also Photo 90.



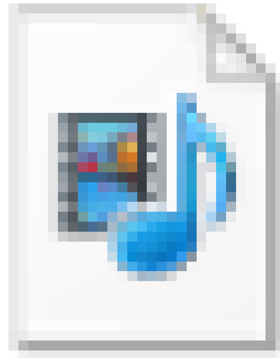
DSCN0322.MP4

Photo 92 [Video]. (DSCN0322) This video shows sheet flow of storm water northward over the impervious surface between Kilns 5 and 6 during steady rainfall on 16 May, 2018.

Photo 93. (DSCN0323) This photo, taken during wet weather on 16 May, 2018, shows a payloader moving kiln brick waste from a pile underneath Kiln 5.

Photo 94. (DSCN0329) This photo, taken from a catwalk on the west side of Kiln 6 during wet weather on 16 May, 2018, shows part of the paved area between Kiln 5 and Kiln 6. Visible in the background is kiln brick waste on the pavement. Storm water drainage is generally from left (south) to right (north) in this photo. Note that storm water runoff is coming into contact with the kiln brick waste.

Photo 95. (DSCN0328) This photo, taken a catwalk on the west side of Kiln 6, looks northward to the railroad bed. Storm water runoff, discolored brown with fine suspended sediment, is moving northward over impervious surface and pooling on the south side of the tracks. Storm water pools extend west along the tracks, where some storm water disappears rapidly into the railroad bed. See also Photo 96 [Video].



DSCN0332.MP4

Photo 96 [Video]. (DSCN0332) This video, taken from the north side of the railroad tracks just north of the kilns, looks southward and shows brown storm water runoff from the Kiln 5 and Kiln 6 areas flowing to, and then rapidly disappearing into, the gravel railroad bed.

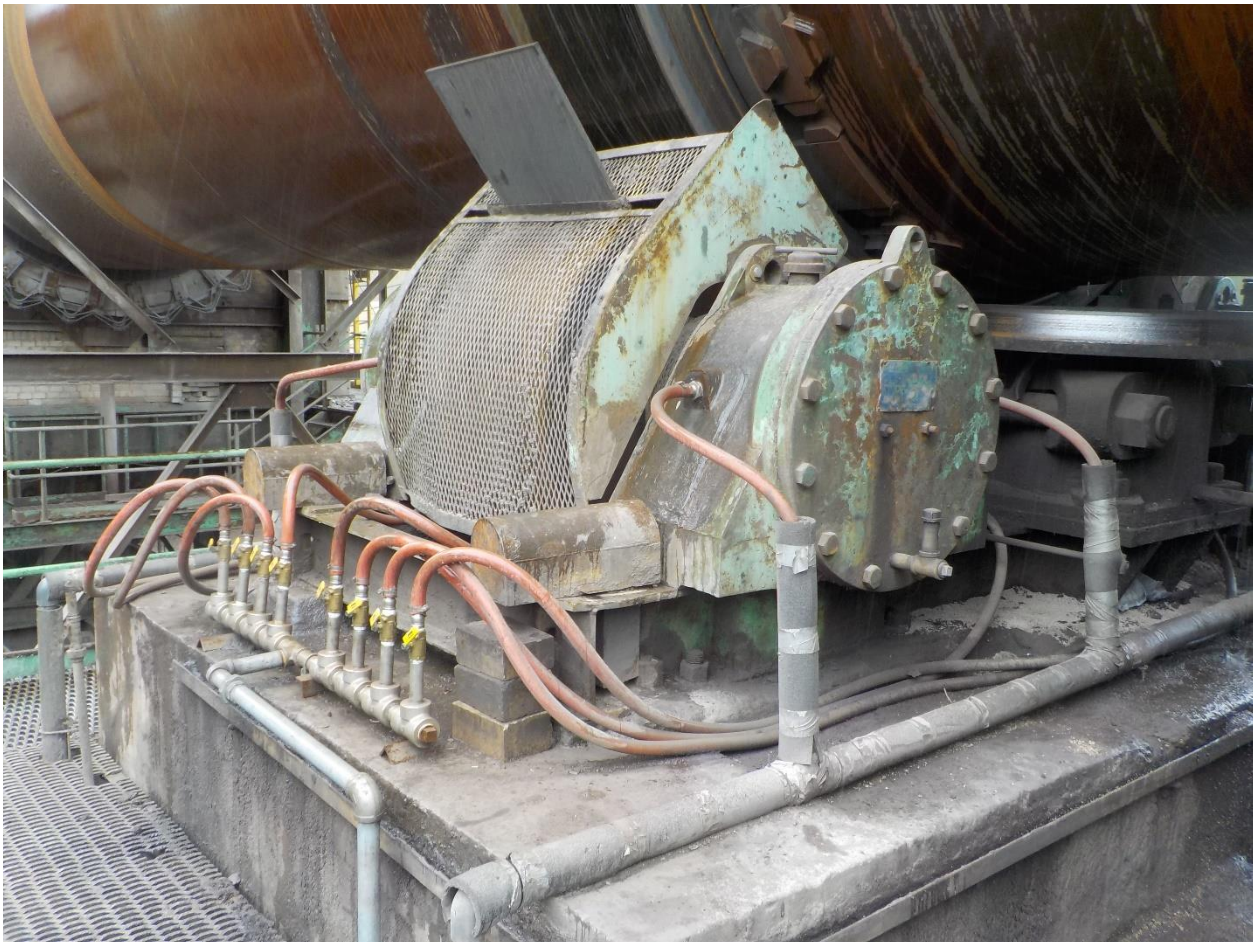


Photo 97. (DSCN0318) This photo, taken on Kiln 6, shows one of rotary kiln bearings and the manifold which distributes non-contact cooling water to the bearing, Note, the return flow pipe is also visible at the bottom of this photo. See also Photo 98.

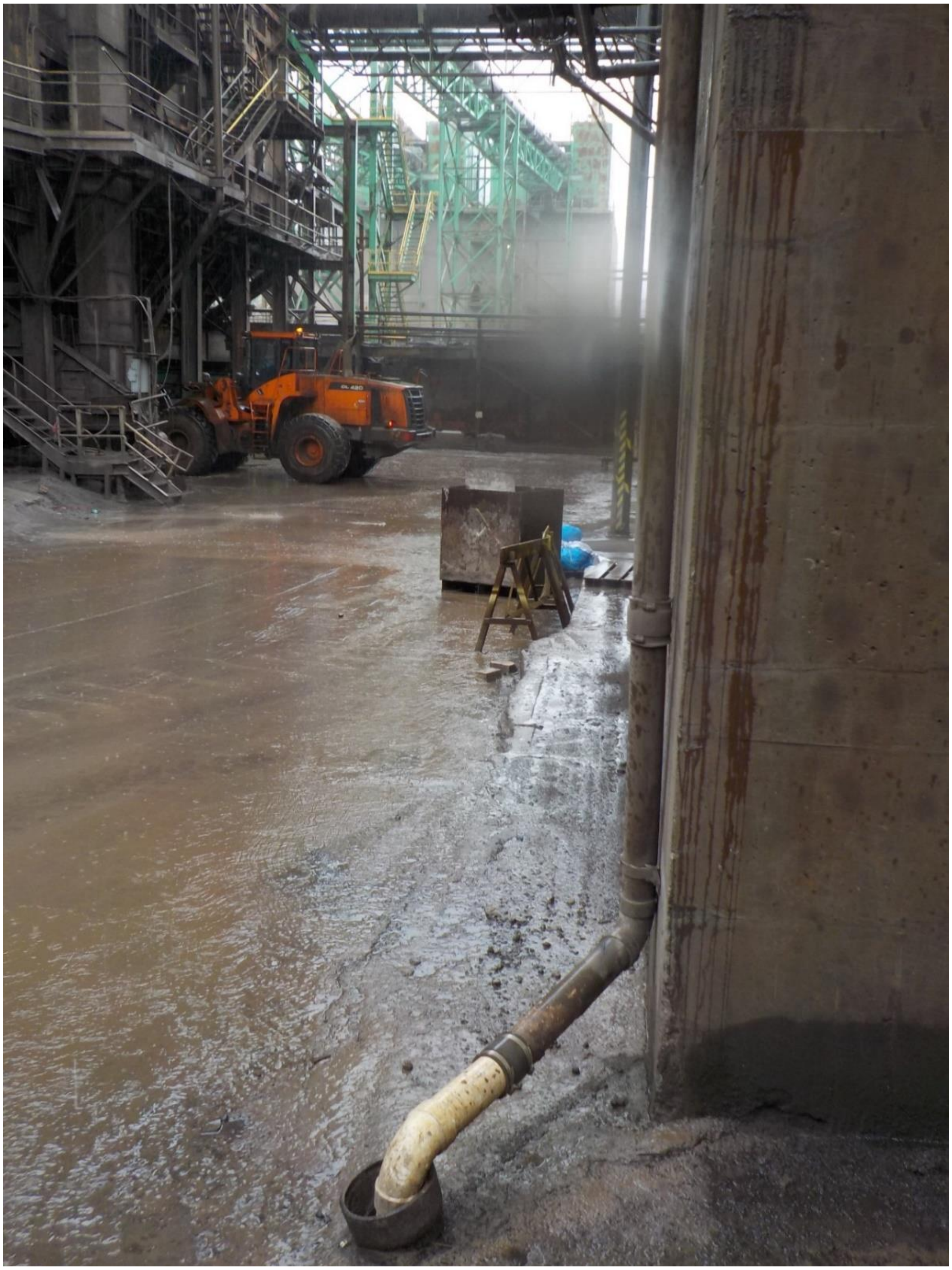


Photo 98. (DSCN0321) This photo shows the return flow pipe of NCCW from a Kiln 6 bearing, going underground.

Photo 99. (DSCN0285) This photo looks southward between Kiln 2 and former Kiln 3, at a concrete "sump" (designated by EPA inspectors as "sump 13"). Note the pipe that comes laterally off Kiln 2 at left, then turns downward at a 45 degree angle and enters the sump. See also Photos 100, 101, and 102.

Photo 100. (DSCN0280) This photo looks northward between Kiln 2 and former Kiln 3. The concrete feature in the middle ground of this photo is “sump 13.” Note the pipe coming from Kiln 2 at right enters the sump. Note also the presence of gray or black sedimentary material accumulated on the paved surface around the sump, and piles of gray, fine-grained material on the Kiln 2 beams in the background. See also Photos 101 and 102.

Photo 101. (DSCN0282) This photo shows a close up of the pipe entering the sump, designated by EPA inspectors as feature “13,” through a hole in the concrete lid. See also Photos 99, 100, and 102.

Photo 102. (DSCN0284) This photo shows a portion of the interior of “sump 13.” Water is visible trickling into the pit through a pipe from Kiln 2 (see Photos 99 and 100). Note also, the ends of other pipes are visible inside “sump 13.”

Photo 103. (DSCN0297) This photo looks eastward down the gravel strip parallel to the Facility's northern access road. The gravel is marked as "French drains" on outfall and drainage map in the Facility's 2015 NPDES application. At center foreground is the outfall 004 weir pit.

Photo 104. (DSCN0296) This photo, taken approximately 55 minutes after the start of a thunderstorm on 15 May, 2018, shows the effluent over the outfall 004 weir. Note, the water is brown and clarity is poor to due high suspended sediment load in the “first flush” of storm water runoff. See Photo 105 for a comparison of these “first flush” conditions to effluent conditions approximately 16 hours later.

Photo 105. (DSCN0306) This photo, taken on the morning of 16 May, 2018, approximately 16 hours after the May 15th thunderstorm, shows the effluent over the outfall 004 weir. Note, the water is clear. See Photo 104 for a comparison of these conditions to the "first flush" effluent conditions immediately after a storm.

Photo 106. (DSCN0262; NIKON COOLPIX P4) This photo shows the outfall 005 weir box. Note, there are two booms placed in the drainage channel downstream of the weir. See also Photo 107.

Photo 107. (DSCN0264; NIKON COOLPIX P4) This photo, taken during rainy weather, shows the outfall 005 weir. See also Photo 106.

Photo 108. (DSCN0263) This photo looks eastward down the railroad bed immediately north of the kilns. In the foreground, the metal plate covering “sump 11” is visible. Note, this feature is not shown on the Facility’s NPDES outfall and drainage map. See also Photo 109.

Photo 109. (DSCN0261) This photo shows a portion of the interior of "sump 11." Note, brown, fine-grained material is accumulated in the sump. See also Photo 108.

Photo 110. (DSCN0265) This photo looks eastward down the railroad bed immediately north of the kilns. In the foreground, the feature designated “manhole 10” by EPA inspectors, is visible with a traffic cone on top.

Photo 111. (DSCN0370) This photo shows part of the southern side of the Kiln 1 “product collector” (baghouse). Note, the white, granular material present on the ground is lead chloride that was released sometime between 16:00 on 16 May, 2018 and 10:17 on 17 May, 2018.

Photo 112. (DSCN0376) This photo shows a close-up of lead chloride released from the Kiln 1 product collector (baghouse). The pen placed for scale is 5.5 inches.

Photo 113. (DSCN0377). This photo shows the baghouse (termed a “product collector” by the Facility) that collects lead chloride ($PbCl_2$) volatilized by the calcining process in Kiln 1. The pipeline from the dust catcher is visible entering the baghouse at top left. The six baghouses are situated in the middle. At far right is the main pipe leading to the stack (stack not visible in this photo). See also Photo 114.

Photo 114. (DSCN0368) This photo looks westward towards the baghouse (termed a "product collector" by the Facility) and stack for Kiln 1 (at left) and the baghouse and stack for Kiln 6 (right). A portion of rotary Kiln 6 is visible at far left in the background.

Photo 115. (DSCN0201) This photo looks east-northeast at the elevated conveyor belt, for pelletized EAF dust and coke, called the "Blender bypass."

Photo 116. (DSCN0204) This photo looks northward at a portion of the elevated conveyor belt, for pelletized EAF dust and coke, called the “gallery belt.” Note, there appear to be holes or gaps in the metal on side of the “gallery belt.”

Photo 117. (DSCN0277) This photo shows a roll-off dumpster situated between Kiln 2 and former Kiln 3. See also Photo 118.

Photo 118. (DSCN0278) This photo shows a close-up view of part of the interior of the roll-off dumpster observed between Kiln 2 and former Kiln 3 (see Photo 117). The dumpster contains a gray, fine-grained material, as well as some black granular material on top.

Photo 119. (DSCN0281; NIKON COOLPIX P4) This photo looks southwest towards the Kiln 1 and Kiln 6 baghouses (termed “product collectors” by the Facility). The eleven (11) white supersacks visible in this photo contain lead chloride, according to Mr. Falko. See also Photo 120.

Photo 120. (DSCN0283; NIKON COOLPIX P4) This photo shows supersacks of lead chloride stored outdoors on wooden pallets. Part of the Kiln 6 baghouse ("product collector") is visible at far left in this photo.

PHOTO CLAIMED AS CONFIDENTIAL BUSINESS INFORMATION BY AZR

PLEASE SEE CBI COORDINATOR

Photo 121. (DSCN0114) This photo shows the display of the Olympus Delta XRF instrument with results from an XRF screening of the brown, fine-grained material sampled from the bottom of catch basin # 1, near the Building 608 truck entrance, on 14 May, 2018. Results show elemental abundance in parts per million (ppm).

PHOTO CLAIMED AS CONFIDENTIAL BUSINESS INFORMATION BY AZR

PLEASE SEE CBI COORDINATOR

Photo 122. (DSCN0175) This photo shows the display of the Olympus Delta XRF instrument with results from an XRF screening of EAF dust sampled from Building 608 on 15 May, 2018. Results show elemental abundance in parts per million (ppm).

Photo 123. (DSCN0367) This photo shows the quench water sump near the Kiln 2 quench tank, where EPA inspectors collected grab samples for field pH measurement and total metals analysis. A 5.5-inch pen is shown for scale. See also Photos 121 and 122.

Photo 124. (IMG_0322.JPG): View of the Aquashicola Creek from the bridge at the main entrance to the Facility

Photo 125. (IMG_0323.JPG): View of the Aquashicola Creek and the Facility parking lot from the bridge at the Facility's main entrance.

Photo 126. (IMG_0329.JPG): View of the 1,000-gallon waste oil AST.

Photo 127. (IMG_0332.JPG): View of Electrical Substation No. 40 on the right and 20,000-gallon Fuel Tank on the left.

Photo 128. (IMG_0347.JPG): View of Transformer No. 5 at Electrical Substation No. 40.

Photo 129. (IMG_0348.JPG): Oil-filled Transformer No. 1 at E.S. No. 40.

Photo 130. (IMG_0351.JPG): Oil-filled Transformer with Blue Stickers indicating Non -PCB.

Photo 131. (IMG_0352.JPG): View of Tank No. 002A a 20,000-gallon Fuel Oil AST and the kilns.

Photo 132. (IMG_0359.JPG): View of Tank No. 002A, a 20,000-gallon Fuel Oil AST.

Photo 133. (IMG_0361.JPG): Open Pipe at Tank No. 002A – 20,000-gallon Fuel Oil AST.

Photo 134. (IMG_0362.JPG): Another View of Pipe with no caps or valves at Tank No. 002A.

Photo 135. (IMG_0363.JPG): Wood Supporting Pipe at Tank No. 002A.

Photo 136. (IMG_0364.JPG): Emergency Power Generator at Kiln 1.

Photo 137. (IMG_0365.JPG): Wet Area on the Back of Emergency Power Generator at Kiln 1.

Photo 138. (IMG_0369.JPG): View of Tank No. 001A, a 20,000-gallon Diesel Fuel AST.

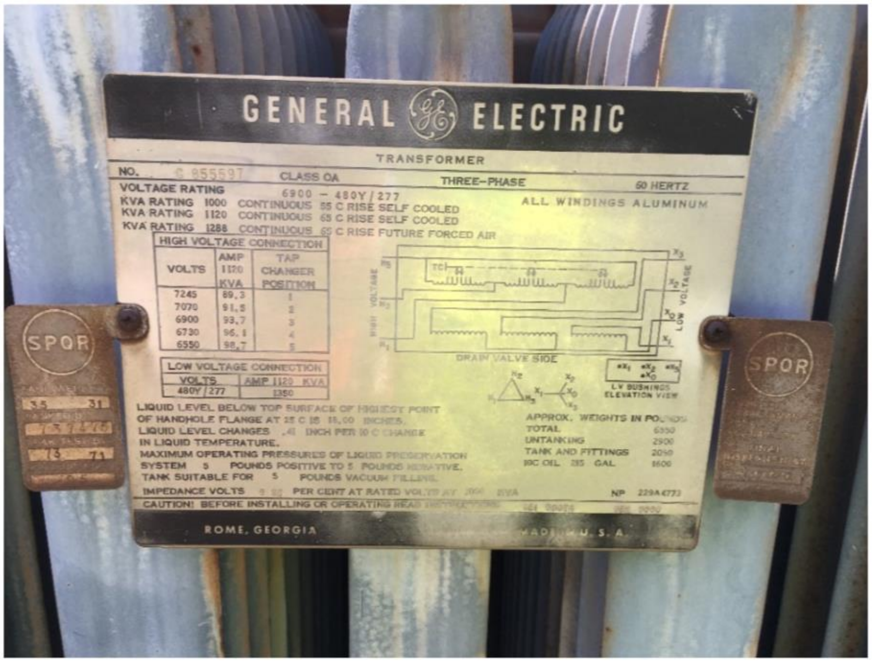


Photo 139. (IMG_0370.JPG): TX S/N G855597 Nameplate.

Photo 140. (IMG_0371.JPG): TX S/N G855597 Blue Label.

Photo 141. (IMG_0381.JPG): View of three Oil-filled Transformers at Electrical Substation No. 27.

Photo 142. (IMG_0387.JPG): Three Oil-filled Transformers at Storage Building.

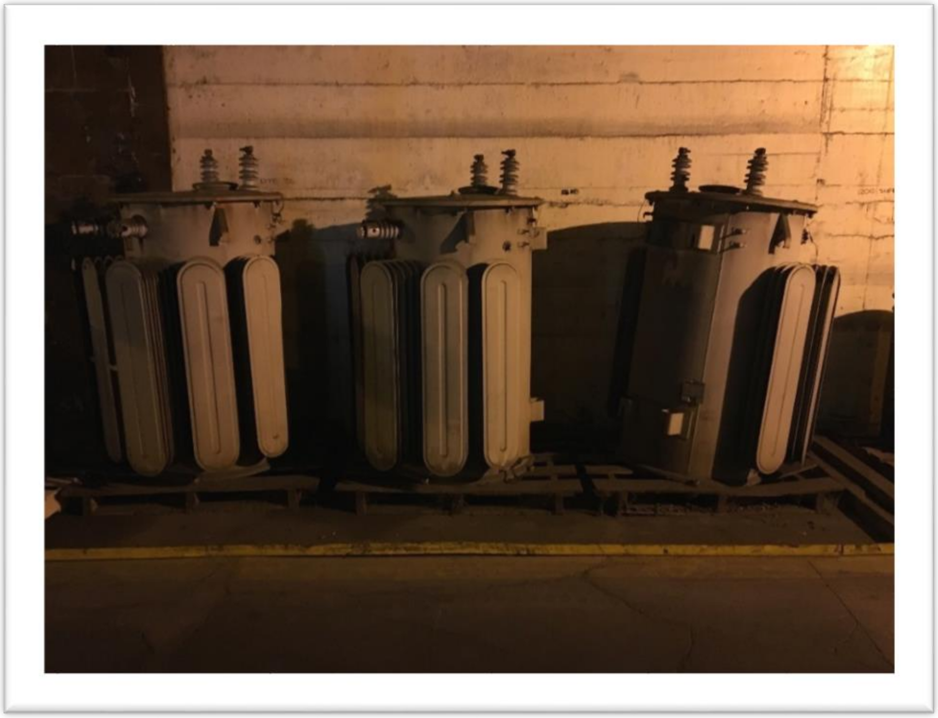


Photo 143. (IMG_0389.JPG): Another View of Three Transformers at Storage Building.

Citations

Bleiwas, D.I. & DiFrancesco, C., 2010. Historical zinc smelting in New Jersey, Pennsylvania, Virginia, West Virginia, and Washington, D.C., with estimates of atmospheric zinc emissions and other materials: U.S. Geological Survey Open File Report 2010-1131, 189 p.

Epstein J. & Sevon W., 1974. Surficial Geologic Map of the Lehighton and Palmerton $7^{1/2}$ Minute Quadrangles, Pennsylvania, Pennsylvania Geological Survey, in cooperation with the U.S. Geological Survey, 1:24,000 scale

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International Directory of Company Histories, 2003. Horsehead Industries Inc. History. Vol. 51. St. James Press. Accessed on http://www.fundinguniverse.com/company-histories/horsehead-industries-inc-history, last accessed 1 August, 2018.

Unger T., Odenwelder J., & Horstmann, J., n.d. HRD's Process for Recycling Inorganic Metal-Bearing Wastes. Horsehead Resource Development Co., Inc.

U.S. EPA National Enforcement Investigations Center, 2018. Technical Report NEICVP1255E01 Palmerton Airborne Particulate Matter Study, 47 p.

Table 1. 24-hour precipitation totals (in inches) for NOAA rain gauges close to the Facility[1]

Date	24-hour precipitation total Lehighton[2]	24-hour precipitation total Bowmanstown[3]	24-hour precipitation total Palmerton[4]
Fri 11 May, 2018	0.10	0.02	0.10
Sat 12 May, 2018	0.60	0.63	0.69
Sun 13 May, 2018	--[5]	0.22	0.11
Mon 14 May, 2018	0.35	0.61	0.41
Tues 15 May, 2018	0.01	0.01	0.01
Wed 16 May, 2018	0.73	1.83	0.63
Thurs 17 May, 2018	1.80	0.27	1.85

(1) Precipitation recorded at a rain gauge for a given date is the total precipitation at that location for the 24 hour period ending at the observation time.
(2) Data from NOAA Land-based station LEHIGHTON 1 SSW, PA US USC00364934
(3) Data from NOAA Land-based station BOWMANSTOWN 3.0 WSW, PA US US1PACB0012
(4) Data from NOAA Land-based station PALMERTON 5.8 ENE, PA US US1PACB0004
(5) NOAA records do not include rain gauge data for NOAA Land-based station LEHIGHTON 1 SSW, PA US USC00364934 for Sunday, 13 May, 2018.

Table 2. Summary of Inspection Samples

Sample #	Location	Date & Time	Matrix	Sample type	Quantity	Preservation	Analytical parameter (method)	Results
1	Catch basin #1	14 May, 2018 14:45	fine-grained solids	incremental grab	1076 g	cool < 6°C	Total metals (SW 6010B)	See Attachment 1 for detailed analytical results
2	puddle located outside building 608 truck entrance	14 May, 2018 15:15	water	incremental grab	250-300 mL	cool < 6°C, pH<2 w/ HNO_3	Total metals (EPA 200.8)	
3	Outfall 004 weir	15 May, 2018 17:00	water	grab	1892 mL	cool < 6°C, pH<2 w/ HNO_3	Total metals (EPA 200.8)	
4	Outfall 004 weir	15 May, 2018 17:05	water	grab	1892 mL	cool < 6°C	Total Suspended Solids (SM2540D)	
5	IRM quench water sump near Kiln 2 quench tank	17 May, 2018 09:55	water	grab	1892 mL	cool < 6°C, pH preserved by lab	Total metals (EPA 200.8)	
6	Dripline of Kiln 1 baghouse	17 May, 2018 10:17	soil	incremental grab	1494 g	cool < 6°C	Total metals (SW6010B)	
7	IRM quench water sump near Kiln 2 quench tank	17 May, 2018 09:50	water	grab	236 mL	None	Field pH (EPA 150.2)	See Attachment 2 (CBI)

Table 3. Summary of Inspection Photographs and Videos

Camera: NIKON COOLPIX W100

Digital file #	Type	Taken by	Date	Time	Report photo #	CBI Claim Y/N
DSCN0080	Photo	Trakis	14-May-18	12:32	2	N
DSCN0081	Photo	Trakis	14-May-18	12:32	Not in report	N
DSCN0082	Photo	Trakis	14-May-18	12:37	Not in report	N
DSCN0083	Photo	Trakis	14-May-18	12:40	Not in report	Y
DSCN0084	Photo	Trakis	14-May-18	12:42	Not in report	N
DSCN0085	Photo	Eller	14-May-18	12:44	Not in report	N
DSCN0086	Photo	Eller	14-May-18	12:44	14	N
DSCN0087	Photo	Trakis	14-May-18	12:50	Not in report	N
DSCN0088	Photo	Trakis	14-May-18	12:50	Not in report	N
DSCN0089	Photo	Trakis	14-May-18	12:55	4	N
DSCN0090	Photo	Trakis	14-May-18	12:56	5	N
DSCN0091	Photo	Trakis	14-May-18	12:56	6	N
DSCN0092	Photo	Trakis	14-May-18	12:57	10	N
DSCN0093	Photo	Trakis	14-May-18	12:59	7	N
DSCN0094	Photo	Eller	14-May-18	13:01	Not in report	N
DSCN0095	Photo	Eller	14-May-18	13:01	8	N
DSCN0096	Photo	Eller	14-May-18	13:01	Not in report	N
DSCN0097	Photo	Eller	14-May-18	13:04	9	N
DSCN0098	Photo	Eller	14-May-18	13:04	11	N
DSCN0099	Photo	Trakis	14-May-18	14:48	Not in report	N
DSCN0100	Photo	Trakis	14-May-18	14:58	Not in report	N
DSCN0101	Photo	Trakis	14-May-18	14:59	Not in report	N
DSCN0102	Photo	Trakis	14-May-18	14:59	Not in report	N
DSCN0103	Photo	Trakis	14-May-18	deleted	Not in report	N
DSCN0104	Photo	Trakis	14-May-18	15:04	Not in report	N
DSCN0105	Photo	Trakis	14-May-18	15:08	12	N
DSCN0106	Photo	Trakis	14-May-18	15:08	Not in report	N
DSCN0107	Photo	Eller	14-May-18	15:10	Not in report	N
DSCN0108	Photo	Eller	14-May-18	15:10	13	N
DSCN0109	Photo	Eller	14-May-18	15:14	Not in report	N
DSCN0110	Photo	Trakis	14-May-18	15:16	Not in report	N
DSCN0111	Photo	Trakis	14-May-18	15:17	3	N
DSCN0112	Photo	Trakis	14-May-18	15:18	Not in report	N
DSCN0113	Photo	Kline	14-May-18	15:31	Not in report	N
DSCN0114	Photo	Eller	14-May-18	15:36	121	Y
DSCN0115	Photo	Kline	14-May-18	16:00	Not in report	N

DSCN0116	Photo	Eller	15-May-18	9:38	Not in report	N
DSCN0117	Photo	Eller	15-May-18	9:38	15	N
DSCN0118	Photo	Eller	15-May-18	9:38	Not in report	N
DSCN0119	Photo	Eller	15-May-18	9:43	Not in report	N
DSCN0120	Photo	Eller	15-May-18	9:43	Not in report	N
DSCN0121	Photo	Eller	15-May-18	9:43	Not in report	N
DSCN0122	Photo	Eller	15-May-18	9:43	Not in report	N
DSCN0123	Photo	Eller	15-May-18	9:44	16	N
DSCN0124	Photo	Eller	15-May-18	9:44	Not in report	N
DSCN0125	Photo	Eller	15-May-18	9:44	17	N
DSCN0126	Photo	Eller	15-May-18	9:44	Not in report	N
DSCN0127	Photo	Eller	15-May-18	9:45	18	N
DSCN0128	Photo	Eller	15-May-18	9:45	19	N
DSCN0129	Photo	Eller	15-May-18	9:45	Not in report	N
DSCN0130	Photo	Eller	15-May-18	9:45	Not in report	N
DSCN0131	Photo	Eller	15-May-18	9:45	21	N
DSCN0132	Photo	Eller	15-May-18	9:47	Not in report	N
DSCN0133	Photo	Eller	15-May-18	9:48	Not in report	N
DSCN0134	Photo	Eller	15-May-18	9:48	20	N
DSCN0135	Photo	Eller	15-May-18	9:48	Not in report	N
DSCN0136	Photo	Eller	15-May-18	9:48	Not in report	N
DSCN0137	Photo	Eller	15-May-18	9:49	Not in report	N
DSCN0138	Photo	Eller	15-May-18	9:49	Not in report	N
DSCN0139	Photo	Eller	15-May-18	9:49	Not in report	N
DSCN0140	Photo	Eller	15-May-18	9:49	Not in report	N
DSCN0141	Photo	Eller	15-May-18	9:49	Not in report	N
DSCN0142	Photo	Eller	15-May-18	9:49	22	N
DSCN0143	Photo	Eller	15-May-18	9:49	Not in report	N
DSCN0144	Photo	Eller	15-May-18	9:50	Not in report	N
DSCN0145	Photo	Eller	15-May-18	9:51	Not in report	N
DSCN0146	Photo	Eller	15-May-18	9:51	Not in report	N
DSCN0147	Photo	Eller	15-May-18	9:51	Not in report	N
DSCN0148	Photo	Eller	15-May-18	9:51	Not in report	N
DSCN0149	Photo	Eller	15-May-18	9:52	23	N
DSCN0150	Photo	Eller	15-May-18	9:52	Not in report	N
DSCN0151	Photo	Eller	15-May-18	9:53	Not in report	N
DSCN0152	Photo	Eller	15-May-18	9:53	Not in report	N
DSCN0153	Photo	Eller	15-May-18	9:55	Not in report	N
DSCN0154	Photo	Eller	15-May-18	9:55	Not in report	N
DSCN0155	Photo	Eller	15-May-18	9:56	Not in report	N
DSCN0156	Photo	Eller	15-May-18	9:56	Not in report	N

DSCN0157	Photo	Eller	15-May-18	9:56	26	N
DSCN0158	Photo	Eller	15-May-18	9:56	Not in report	N
DSCN0159	Photo	Eller	15-May-18	9:56	Not in report	N
DSCN0160	Photo	Eller	15-May-18	9:57	27	N
DSCN0161	Photo	Eller	15-May-18	9:57	Not in report	N
DSCN0162	Photo	Eller	15-May-18	9:57	Not in report	N
DSCN0163	Photo	Eller	15-May-18	10:00	Not in report	N
DSCN0164	Photo	Eller	15-May-18	10:00	28	N
DSCN0165	Photo	Eller	15-May-18	10:00	Not in report	N
DSCN0166	Photo	Eller	15-May-18	10:00	29	N
DSCN0167	Photo	Eller	15-May-18	10:00	Not in report	N
DSCN0168	Photo	Eller	15-May-18	10:01	Not in report	N
DSCN0169	Photo	Eller	15-May-18	10:04	Not in report	N
DSCN0170	Photo	Eller	15-May-18	10:04	Not in report	N
DSCN0171	Photo	Eller	15-May-18	10:19	32	N
DSCN0172	Photo	Eller	15-May-18	10:24	Not in report	N
DSCN0173	Photo	Eller	15-May-18	10:24	Not in report	N
DSCN0174	Photo	Eller	15-May-18	10:24	Not in report	N
DSCN0175	Photo	Eller	15-May-18	10:28	122	Y
DSCN0176	Photo	Eller	15-May-18	10:47	24	N
DSCN0177	Photo	Eller	15-May-18	10:47	Not in report	N
DSCN0178	Photo	Eller	15-May-18	10:48	25	N
DSCN0179	Photo	Eller	15-May-18	10:49	30	N
DSCN0180	Photo	Eller	15-May-18	10:50	31	N
DSCN0181	Photo	Eller	15-May-18	10:51	Not in report	N
DSCN0182	Photo	Eller	15-May-18	10:52	Not in report	N
DSCN0183	Photo	Eller	15-May-18	10:52	Not in report	N
DSCN0184	Photo	Eller	15-May-18	10:52	Not in report	N
DSCN0185	Photo	Eller	15-May-18	10:54	Not in report	N
DSCN0186	Photo	Eller	15-May-18	10:54	Not in report	N
DSCN0187	Photo	Eller	15-May-18	10:54	Not in report	N
DSCN0188	Photo	Eller	15-May-18	10:54	Not in report	N
DSCN0189	Photo	Eller	15-May-18	10:54	Not in report	N
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DSCN0191	Photo	Eller	15-May-18	10:57	Not in report	N
DSCN0192	Photo	Eller	15-May-18	10:58	Not in report	N
DSCN0193	Photo	Eller	15-May-18	10:58	Not in report	N
DSCN0194	Photo	Eller	15-May-18	10:58	Not in report	N
DSCN0195	Photo	Eller	15-May-18	10:58	Not in report	N
DSCN0196	Photo	Eller	15-May-18	10:58	Not in report	N
DSCN0197	Photo	Eller	15-May-18	10:59	Not in report	N

DSCN0198	Photo	Eller	15-May-18	10:59	Not in report	N
DSCN0199	Photo	Eller	15-May-18	11:16	Not in report	N
DSCN0200	Photo	Eller	15-May-18	11:16	Not in report	N
DSCN0201	Photo	Eller	15-May-18	11:16	115	N
DSCN0202	Photo	Eller	15-May-18	11:16	Not in report	N
DSCN0203	Photo	Eller	15-May-18	11:16	Not in report	N
DSCN0204	Photo	Eller	15-May-18	11:17	116	N
DSCN0205	Photo	Eller	15-May-18	11:17	Not in report	N
DSCN0206	Photo	Eller	15-May-18	11:17	Not in report	N
DSCN0207	Photo	Eller	15-May-18	11:17	36	N
DSCN0208	Photo	Eller	15-May-18	11:17	37	N
DSCN0209	Photo	Eller	15-May-18	11:17	38	N
DSCN0210	Photo	Eller	15-May-18	11:17	39	N
DSCN0211	Photo	Eller	15-May-18	11:17	40	N
DSCN0212	Photo	Eller	15-May-18	11:18	41	N
DSCN0213	Photo	Eller	15-May-18	11:18	42	N
DSCN0214	Photo	Eller	15-May-18	11:18	Not in report	N
DSCN0215	Photo	Eller	15-May-18	11:45	43	N
DSCN0216	Photo	Eller	15-May-18	11:54	44	N
DSCN0217	Photo	Eller	15-May-18	11:55	51	N
DSCN0218	Photo	Eller	15-May-18	12:05	50	N
DSCN0219	Photo	Eller	15-May-18	12:07	Not in report	N
DSCN0220	Photo	Eller	15-May-18	12:07	Not in report	N
DSCN0221	Photo	Eller	15-May-18	12:08	54	N
DSCN0222	Photo	Eller	15-May-18	12:08	Not in report	N
DSCN0223	Photo	Eller	15-May-18	12:08	Not in report	N
DSCN0224	Photo	Eller	15-May-18	12:09	56	N
DSCN0225	Photo	Eller	15-May-18	12:16	Not in report	N
DSCN0226	Photo	Eller	15-May-18	12:17	Not in report	N
DSCN0227	Photo	Eller	15-May-18	12:18	Not in report	N
DSCN0228	Photo	Eller	15-May-18	12:18	Not in report	N
DSCN0229	Photo	Eller	15-May-18	12:19	Not in report	N
DSCN0230	Photo	Eller	15-May-18	12:24	63	N
DSCN0231	Photo	Eller	15-May-18	12:25	Not in report	N
DSCN0232	Photo	Eller	15-May-18	12:25	Not in report	N
DSCN0233	Photo	Eller	15-May-18	12:25	Not in report	N
DSCN0234	Photo	Eller	15-May-18	12:25	Not in report	N
DSCN0235	Photo	Eller	15-May-18	12:25	Not in report	N
DSCN0236	Photo	Eller	15-May-18	12:25	Not in report	N
DSCN0237	Photo	Eller	15-May-18	12:25	Not in report	N
DSCN0238	Photo	Eller	15-May-18	12:26	Not in report	N

DSCN0239	Photo	Eller	15-May-18	12:26	Not in report	N
DSCN0240	Photo	Eller	15-May-18	12:26	57	N
DSCN0241	Photo	Eller	15-May-18	12:27	Not in report	N
DSCN0242	Photo	Eller	15-May-18	12:27	Not in report	N
DSCN0243	Photo	Eller	15-May-18	12:27	Not in report	N
DSCN0244	Photo	Eller	15-May-18	12:27	58	N
DSCN0245	Photo	Eller	15-May-18	12:27	55	N
DSCN0246	Photo	Eller	15-May-18	12:27	Not in report	N
DSCN0247	Photo	Eller	15-May-18	12:27	Not in report	N
DSCN0248	Photo	Eller	15-May-18	12:28	64	N
DSCN0249	Photo	Eller	15-May-18	12:28	Not in report	N
DSCN0250	Photo	Eller	15-May-18	12:30	65	N
DSCN0251	Photo	Eller	15-May-18	12:36	Not in report	N
DSCN0252	Photo	Eller	15-May-18	15:05	79	N
DSCN0253	Photo	Eller	15-May-18	15:05	80	N
DSCN0254	Photo	Eller	15-May-18	15:12	33	N
DSCN0255	Photo	Eller	15-May-18	15:12	34	N
DSCN0256	Photo	Eller	15-May-18	15:17	81	N
DSCN0257	Photo	Trakis	15-May-18	15:19	91	N
DSCN0258	Photo	Trakis	15-May-18	15:19	90	N
DSCN0259	Photo	Eller	15-May-18	15:25	Not in report	N
DSCN0260	Photo	Eller	15-May-18	15:26	Not in report	N
DSCN0261	Photo	Eller	15-May-18	15:26	109	N
DSCN0262	Photo	Eller	15-May-18	15:27	Not in report	N
DSCN0263	Photo	Eller	15-May-18	15:27	108	N
DSCN0264	Photo	Eller	15-May-18	15:27	Not in report	N
DSCN0265	Photo	Eller	15-May-18	15:27	110	N
DSCN0266	Photo	Eller	15-May-18	15:27	Not in report	N
DSCN0267	Photo	Eller	15-May-18	15:37	Not in report	N
DSCN0268	Photo	Eller	15-May-18	15:37	Not in report	N
DSCN0269	Photo	Eller	15-May-18	15:37	82	N
DSCN0270	Photo	Eller	15-May-18	15:37	83	N
DSCN0271	Photo	Eller	15-May-18	15:37	Not in report	N
DSCN0272	Photo	Eller	15-May-18	15:37	84	N
DSCN0273	Photo	Eller	15-May-18	15:37	Not in report	N
DSCN0274	Photo	Eller	15-May-18	15:37	Not in report	N
DSCN0275	Photo	Eller	15-May-18	15:37	85	N
DSCN0276	Photo	Eller	15-May-18	15:38	Not in report	N
DSCN0277	Photo	Eller	15-May-18	15:39	117	N
DSCN0278	Photo	Eller	15-May-18	15:40	118	N
DSCN0279	Photo	Eller	15-May-18	15:40	Not in report	N

DSCN0280	Photo	Eller	15-May-18	15:42	100	N
DSCN0281	Photo	Eller	15-May-18	15:42	Not in report	N
DSCN0282	Photo	Eller	15-May-18	15:42	101	N
DSCN0283	Photo	Eller	15-May-18	15:42	Not in report	N
DSCN0284	Photo	Eller	15-May-18	15:42	102	N
DSCN0285	Photo	Eller	15-May-18	15:43	99	N
DSCN0286	Photo	Eller	15-May-18	15:53	73	N
DSCN0287	Video	Eller	15-May-18	15:54	Not in report	N
DSCN0288	Photo	Eller	15-May-18	15:54	Not in report	N
DSCN0289	Photo	Eller	15-May-18	15:54	Not in report	N
DSCN0290	Photo	Eller	15-May-18	15:54	74	N
DSCN0291	Photo	Eller	15-May-18	15:54	75	N
DSCN0292	Photo	Eller	15-May-18	15:59	76	N
DSCN0293	Photo	Eller	15-May-18	15:59	Not in report	N
DSCN0294	Video	Eller	15-May-18	16:01	1	N
DSCN0295	Photo	Eller	15-May-18	16:02	Not in report	N
DSCN0296	Photo	Eller	15-May-18	17:01	104	N
DSCN0297	Photo	Eller	15-May-18	17:01	103	N
DSCN0298	Photo	Eller	15-May-18	17:01	Not in report	N
DSCN0299	Photo	Eller	15-May-18	17:01	Not in report	N
DSCN0300	Photo	Eller	15-May-18	17:01	Not in report	N
DSCN0301	Photo	Eller	15-May-18	17:02	Not in report	N
DSCN0302	Photo	Eller	15-May-18	17:32	Not in report	N
DSCN0303	Photo	Eller	15-May-18	17:44	Not in report	N
DSCN0304	Photo	Eller	15-May-18	17:44	Not in report	N
DSCN0305	Photo	Eller	16-May-18	9:31	Not in report	N
DSCN0306	Photo	Eller	16-May-18	9:31	105	N
DSCN0307	Photo	Eller	16-May-18	9:32	Not in report	N
DSCN0308	Photo	Eller	16-May-18	10:50	Not in report	N
DSCN0309	Photo	Eller	16-May-18	10:50	Not in report	N
DSCN0310	Photo	Eller	16-May-18	10:50	Not in report	N
DSCN0311	Photo	Eller	16-May-18	10:51	Not in report	Y
DSCN0312	Photo	Eller	16-May-18	10:54	77	N
DSCN0313	Photo	Eller	16-May-18	10:54	Not in report	N
DSCN0314	Photo	Eller	16-May-18	10:54	78	N
DSCN0315	Photo	Eller	16-May-18	11:07	Not in report	N
DSCN0316	Photo	Eller	16-May-18	11:08	Not in report	N
DSCN0317	Photo	Eller	16-May-18	11:08	Not in report	N
DSCN0318	Photo	Eller	16-May-18	11:19	97	N
DSCN0319	Photo	Eller	16-May-18	11:20	Not in report	N
DSCN0320	Video	Eller	16-May-18	11:20	Not in report	N

DSCN0321	Photo	Eller	16-May-18	11:25	98	N
DSCN0322	Video	Eller	16-May-18	11:25	92	N
DSCN0323	Photo	Eller	16-May-18	11:26	93	N
DSCN0324	Photo	Eller	16-May-18	11:27	Not in report	N
DSCN0325	Photo	Eller	16-May-18	11:27	Not in report	N
DSCN0326	Photo	Eller	16-May-18	11:28	Not in report	N
DSCN0327	Photo	Eller	16-May-18	11:28	Not in report	N
DSCN0328	Photo	Eller	16-May-18	11:28	95	N
DSCN0329	Photo	Eller	16-May-18	11:28	94	N
DSCN0330	Photo	Eller	16-May-18	11:32	Not in report	N
DSCN0331	Photo	Eller	16-May-18	11:32	Not in report	N
DSCN0332	Video	Eller	16-May-18	11:32	96	N
DSCN0333	Photo	Eller	16-May-18	11:36	86	N
DSCN0334	Photo	Eller	16-May-18	11:36	87	N
DSCN0335	Photo	Eller	16-May-18	11:37	Not in report	N
DSCN0336	Photo	Eller	16-May-18	11:37	88	N
DSCN0337	Photo	Eller	16-May-18	11:37	Not in report	N
DSCN0338	Photo	Eller	16-May-18	11:37	89	N
DSCN0339	Photo	Eller	16-May-18	11:37	Not in report	N
DSCN0340	Photo	Eller	16-May-18	11:44	Not in report	N
DSCN0341	Photo	Eller	16-May-18	11:44	60	N
DSCN0342	Photo	Eller	16-May-18	11:44	Not in report	N
DSCN0343	Video	Eller	16-May-18	11:44	Not in report	N
DSCN0344	Photo	Eller	16-May-18	11:44	Not in report	N
DSCN0345	Photo	Eller	16-May-18	11:45	59	N
DSCN0346	Photo	Eller	16-May-18	11:45	66	N
DSCN0347	Photo	Eller	16-May-18	11:45	67	N
DSCN0348	Photo	Eller	16-May-18	11:45	68	N
DSCN0349	Photo	Eller	16-May-18	11:45	69	N
DSCN0350	Video	Eller	16-May-18	11:46	Not in report	N
DSCN0351	Photo	Eller	16-May-18	11:46	70	N
DSCN0352	Photo	Eller	16-May-18	11:46	71	N
DSCN0353	Photo	Eller	16-May-18	11:46	72	N
DSCN0354	Photo	Eller	16-May-18	11:47	53	N
DSCN0355	Photo	Eller	16-May-18	11:47	52	N
DSCN0356	Photo	Eller	16-May-18	11:51	Not in report	N
DSCN0357	Photo	Eller	16-May-18	11:51	Not in report	N
DSCN0358	Photo	Eller	16-May-18	11:52	Not in report	N
DSCN0359	Photo	Eller	16-May-18	11:52	35	N
DSCN0360	Photo	Eller	16-May-18	11:53	Not in report	N
DSCN0361	Photo	Eller	16-May-18	11:53	47	N

DSCN0362	Photo	Eller	16-May-18	11:54	45	N
DSCN0363	Photo	Eller	16-May-18	11:55	46	N
DSCN0364	Photo	Eller	16-May-18	11:55	Not in report	N
DSCN0365	Photo	Eller	17-May-18	9:50	62	Y
DSCN0366	Photo	Eller	17-May-18	9:50	61	Y
DSCN0367	Photo	Eller	17-May-18	9:51	123	N
DSCN0368	Photo	Eller	17-May-18	10:17	114	N
DSCN0369	Photo	Eller	17-May-18	10:17	Not in report	N
DSCN0370	Photo	Eller	17-May-18	10:19	111	N
DSCN0371	Photo	Eller	17-May-18	10:20	Not in report	N
DSCN0372	Photo	Eller	17-May-18	10:20	Not in report	N
DSCN0373	Photo	Eller	17-May-18	10:20	Not in report	N
DSCN0374	Photo	Eller	17-May-18	10:20	Not in report	N
DSCN0375	Photo	Eller	17-May-18	10:20	Not in report	Y
DSCN0376	Photo	Eller	17-May-18	10:21	112	N
DSCN0377	Photo	Eller	17-May-18	10:23	113	N
DSCN0378	Photo	Eller	17-May-18	10:25	Not in report	N
DSCN0379	Photo	Eller	17-May-18	10:28	Not in report	N
DSCN0380	Photo	Eller	17-May-18	10:28	Not in report	N
DSCN0381	Photo	Eller	17-May-18	10:29	Not in report	N
DSCN0382	Photo	Eller	17-May-18	10:29	Not in report	N
DSCN0383	Photo	Eller	17-May-18	10:29	Not in report	N
DSCN0384	Photo	Eller	17-May-18	11:58	Not in report	N
DSCN0385	Photo	Eller	17-May-18	11:59	Not in report	N
DSCN0386	Photo	Eller	17-May-18	12:00	Not in report	N
DSCN0387	Photo	Eller	17-May-18	12:01	Not in report	N
DSCN0388	Photo	Eller	17-May-18	12:12	Not in report	N
DSCN0389	Photo	Eller	17-May-18	12:12	Not in report	N
DSCN0390	Photo	Eller	17-May-18	12:12	Not in report	N
DSCN0391	Photo	Eller	17-May-18	12:13	Not in report	N
DSCN0392	Photo	Eller	17-May-18	12:19	Not in report	N
DSCN0393	Photo	Eller	17-May-18	12:20	Not in report	N
DSCN0394	Photo	Eller	17-May-18	12:20	Not in report	N
DSCN0395	Photo	Eller	17-May-18	12:20	Not in report	N
DSCN0396	Photo	Eller	17-May-18	12:20	Not in report	N
DSCN0397	Photo	Eller	17-May-18	12:20	Not in report	N
DSCN0398	Photo	Eller	17-May-18	12:20	Not in report	N
DSCN0399	Photo	Eller	17-May-18	12:25	Not in report	N
DSCN0400	Photo	Eller	17-May-18	12:25	Not in report	N
DSCN0401	Photo	Eller	17-May-18	12:56	Not in report	N

Table 3. Summary of Inspection Photographs and Videos

Camera: NIKON COOLPIX P4

Digital file #	Type	Taken by	Date	Time	Report photo #	CBI Claim Y/N
DSCN0262	Photo	Eller	16-May-18	13:13	106	N
DSCN0263	Photo	Eller	16-May-18	13:14	Not in report	N
DSCN0264	Photo	Eller	16-May-18	13:14	107	N
DSCN0265	Photo	Eller	16-May-18	13:14	Not in report	N
DSCN0266	Photo	Eller	16-May-18	13:14	Not in report	Y
DSCN0267	Photo	Eller	16-May-18	13:14	Not in report	Y
DSCN0268	Photo	Eller	16-May-18	13:15	Not in report	Y
DSCN0269	Photo	Eller	16-May-18	13:15	Not in report	Y
DSCN0270	Photo	Eller	16-May-18	13:16	Not in report	N
DSCN0271	Photo	Eller	16-May-18	13:20	Not in report	N
DSCN0272	Photo	Eller	16-May-18	13:20	Not in report	N
DSCN0273	Photo	Eller	16-May-18	13:21	Not in report	N
DSCN0274	Photo	Kline	16-May-18	13:34	48	N
DSCN0275	Photo	Kline	16-May-18	13:34	Not in report	N
DSCN0276	Photo	Kline	16-May-18	13:34	49	N
DSCN0277	Photo	Eller	16-May-18	13:38	Not in report	N
DSCN0278	Photo	Eller	16-May-18	13:38	Not in report	N
DSCN0279	Photo	Eller	16-May-18	13:39	Not in report	N
DSCN0280	Photo	Eller	16-May-18	13:40	Not in report	N
DSCN0281	Photo	Eller	16-May-18	13:40	119	N
DSCN0282	Photo	Eller	16-May-18	13:40	Not in report	N
DSCN0283	Photo	Eller	16-May-18	13:41	120	N

Table 3. Summary of Inspection Photographs and Videos

Camera: iPhone 6s

Digital file #	Type	Taken by	Date	Time	Report photo #	CBI Claim Y/N
IMG_0322	Photo	Jimenez	14-May-18	10:39	124	N
IMG_0323	Photo	Jimenez	14-May-18	10:39	125	N
IMG_0324	Photo	Jimenez	14-May-18	10:39	Not in report	N
IMG_0325	Photo	Jimenez	14-May-18	10:39	Not in report	N
IMG_0326	Photo	Jimenez	14-May-18	10:39	Not in report	N
IMG_0327	Photo	Jimenez	14-May-18	10:43	Not in report	N
IMG_0328	Photo	Jimenez	14-May-18	10:43	Not in report	N
IMG_0329	Photo	Jimenez	14-May-18	12:09	126	N
IMG_0330	Photo	Jimenez	14-May-18	12:10	Not in report	N
IMG_0331	Photo	Jimenez	14-May-18	12:10	Not in report	N
IMG_0332	Photo	Jimenez	14-May-18	12:15	127	N
IMG_0333	Photo	Jimenez	14-May-18	12:15	Not in report	N
IMG_0334	Photo	Jimenez	14-May-18	12:15	Not in report	N
IMG_0335	Photo	Jimenez	14-May-18	12:15	Not in report	N
IMG_0336	Photo	Jimenez	14-May-18	12:15	Not in report	N
IMG_0341	Photo	Jimenez	14-May-18	12:30	Not in report	N
IMG_0342	Photo	Jimenez	14-May-18	12:30	Not in report	N
IMG_0345	Photo	Jimenez	14-May-18	12:30	Not in report	N
IMG_0346	Photo	Jimenez	14-May-18	12:32	Not in report	N
IMG_0347	Photo	Jimenez	14-May-18	12:40	128	N

IMG_0348	Photo	Jimenez	14-May-18	12:41	129	N
IMG_0349	Photo	Jimenez	14-May-18	12:41	Not in report	N
IMG_0350	Photo	Jimenez	14-May-18	12:42	Not in report	N
IMG_0351	Photo	Jimenez	14-May-18	12:42	130	N
IMG_0352	Photo	Jimenez	14-May-18	12:52	131	N
IMG_0353	Photo	Jimenez	14-May-18	12:58	Not in report	N
IMG_0354	Photo	Jimenez	14-May-18	12:58	Not in report	N
IMG_0357	Photo	Jimenez	15-May-18	9:39	Not in report	N
IMG_0358	Photo	Jimenez	15-May-18	9:50	Not in report	N
IMG_0359	Photo	Jimenez	15-May-18	10:10	132	N
IMG_0360	Photo	Jimenez	15-May-18	10:10	Not in report	N
IMG_0361	Photo	Jimenez	15-May-18	10:12	133	N
IMG_0362	Photo	Jimenez	15-May-18	10:12	134	N
IMG_0363	Photo	Jimenez	15-May-18	10:14	135	N
IMG_0364	Photo	Jimenez	15-May-18	10:35	Not in report	N
IMG_0365	Photo	Jimenez	15-May-18	10:35	137	N
IMG_0366	Photo	Jimenez	15-May-18	10:35	Not in report	N
IMG_0367	Photo	Jimenez	15-May-18	10:48	Not in report	N
IMG_0368	Photo	Jimenez	15-May-18	10:54	Not in report	N
IMG_0369	Photo	Jimenez	15-May-18	10:55	138	N
IMG_0370	Photo	Jimenez	15-May-18	11:02	139	N
IMG_0371	Photo	Jimenez	15-May-18	11:05	140	N

IMG_0372	Photo	Jimenez	15-May-18	11:14	Not in report	N
IMG_0373	Photo	Jimenez	15-May-18	16:56	Not in report	N
IMG_0374	Photo	Jimenez	15-May-18	16:56	Not in report	N
IMG_0375	Photo	Jimenez	15-May-18	17:06	Not in report	Y
IMG_0376	Video	Jimenez	16-May-18	6:23	Not in report	N
IMG_0381	Photo	Jimenez	16-May-18	9:05	141	N
IMG_0382	Photo	Jimenez	16-May-18	9:06	Not in report	N
IMG_0383	Photo	Jimenez	16-May-18	9:06	Not in report	N
IMG_0384	Photo	Jimenez	16-May-18	9:07	Not in report	N
IMG_0385	Photo	Jimenez	16-May-18	9:07	Not in report	N
IMG_0386	Photo	Jimenez	16-May-18	9:15	Not in report	N
IMG_0387	Photo	Jimenez	16-May-18	9:18	142	N
IMG_0388	Photo	Jimenez	16-May-18	9:21	Not in report	N
IMG_0389	Photo	Jimenez	16-May-18	9:22	143	N

Table 4. EPCRA 313 Chemical Usage (Pb, Zn, and Hg Compounds), 2014-2016

Reporting Year	313 Chemical	Activity (lb, unless otherwise noted)[1] (M)-Manufacture (P)-Processed (O)-Oth. Used	Threshold for reporting (lb., unless otherwise noted)	Toxic Chemical Release Report Filed	Date Filed (per Enviro-facts)
2014	Zinc Compounds	More than 25,000	25,000	Form R	1/4/16
2014	Mercury	More than 10	10	Form R	1/4/16
2014	Lead Compounds	More than 100	100	Form R	1/4/16
2015	Zinc Compounds	More than 25,000	25,000	Form R	6/30/16
2015	Mercury	More than 10	10	Form R	6/30/16
2015	Lead Compounds	More than 100	100	Form R	6/30/16
2016	Zinc Compounds	More than 25,000	25,000	Form R	6/30/17
2016	Mercury	More than 10	10	Form R	6/30/17
2016	Lead Compounds	More than 100	100	Form R	6/30/17

[1] The activity numbers were classified by the Facility as confidential information.

Table 5. Comparison of Reported vs. Calculated Values Submitted on 18 May 2018 for Selected EPCRA 313 Chemicals

Reporting Year	**313 Chemical**	**Form R section**	**Reported**	**Calculated 5/18/18**	**Percentage Difference[2]**
2015	Lead Compounds	5.1 Fugitive or Non-Point Air Emissions	2	33	-177 %
2016	Mercury	5.2 Stack or Point Air Emissions	1, 064	1, 032	3 %
2016	Lead Compounds	8.1d Total other offsite disposal or other releases	1.3579	78.21	-193 %

[2] Percentage Difference= (Value 1-Value 2)/((Value 1+Value 2)/2) x 100

Table 6. Comparison of Reported vs. Calculated Values Submitted on 25 June 2018 for Selected EPCRA 313 Chemicals

Reporting Year	313 Chemical	Form R section	Reported	Calculated 6/25/18	Percentage Difference
2015	Lead Compounds	8.1 b Total other on-site disposal or other releases	3,256	3,287	-0.9%
2015	Lead Compounds	8.1 c Total off-site disposal to Class I Underground Injection Wells, RCRA Subtitle C landfills, and other landfills	4.52	2	77%
2015	Lead Compounds	8.1d Total other offsite disposal or other releases	1.48	4	-92%

Table 7. Comparison of Reported and Calculated Values for Selected EPCRA 313 Chemicals as submitted on 18 May 2018 and on 25 June 2018

Reporting Year	313 Chemical	Form R section	Reported	Calculated 5/18/18	Calculated 6/25/18
2016	Mercury	5.2 Stack or Point Air Emissions	1, 064	1, 032	1,064
2016	Lead Compounds	8.1d Total other offsite disposal or other releases	1.3579	78.21	3.67

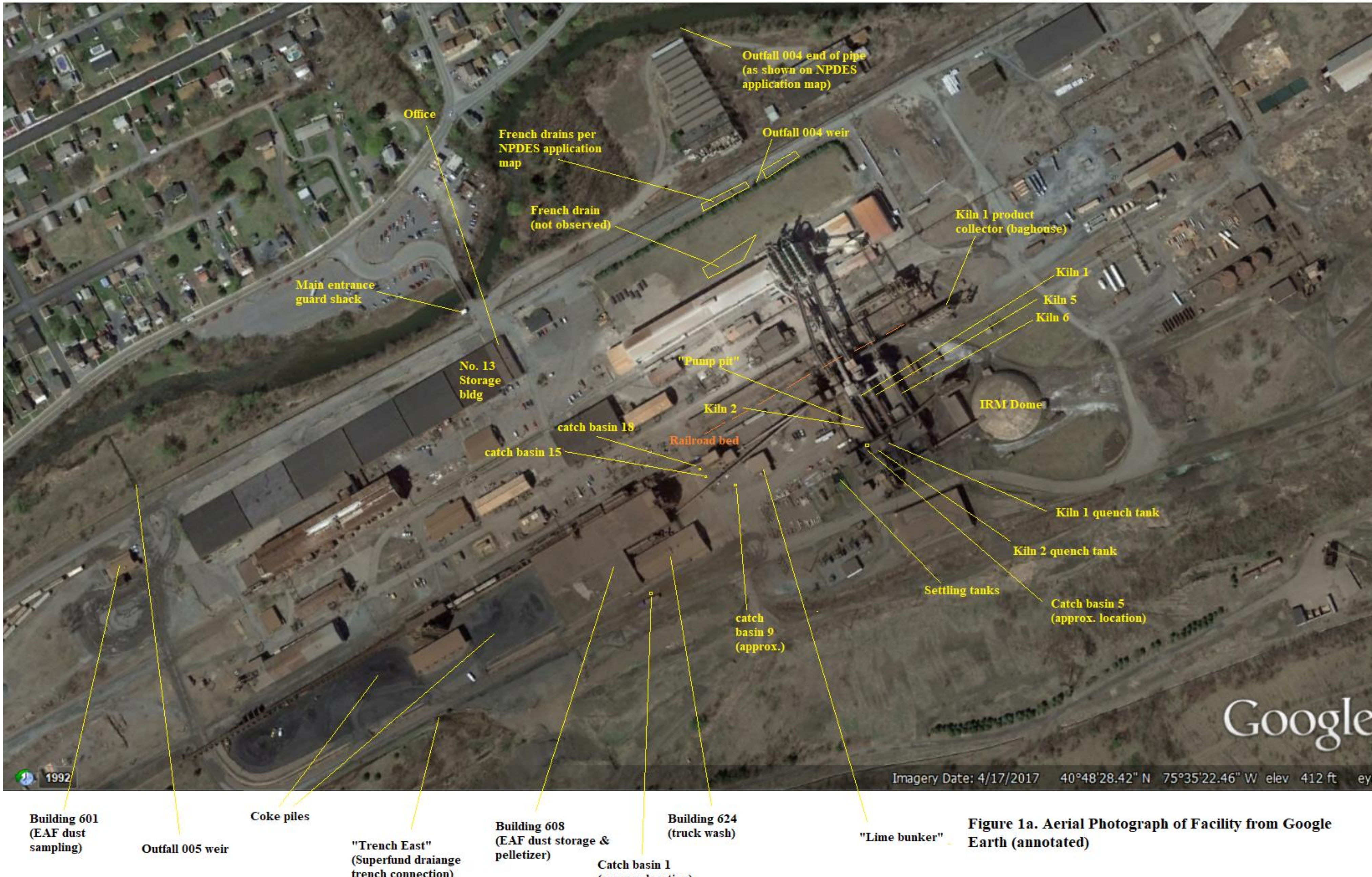

Figure 1a. Aerial Photograph of Facility from Google Earth (annotated)

Figure 1b. Aerial Photograph of paved areas near building 608 / building 624 from Google Earth (annotated)